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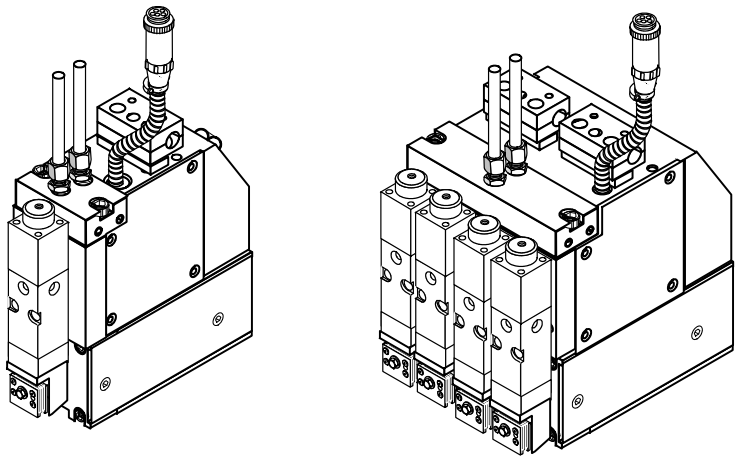
ITW Dynatec
The Next Level of Technology

■ innovation ■ service ■ reliability

OPERATIONS AND SERVICE MANUAL

1 - 6 PORT MR1300 HOT MELT ADHESIVE APPLICATORS with INTEGRATED FILTERS

Including DYNAFIBER UFD MODULES



IMPORTANT ! - READ ALL INSTRUCTIONS BEFORE OPERATING THIS EQUIPMENT

It is the customer's responsibility to have all operators and service personnel read and understand this information. Contact your ITW Dynatec customer service representative for additional copies.

NOTICE! Please be sure to include the serial number of your application system each time you order replacement parts and/or supplies. This will enable us to send you the correct items that you need.

ITW Dynatec Service Parts Direct Dial: 1-800-538-9540
ITW Dynatec Technical Service Direct Dial: 1-800-654-6711

⚠ SAFETY INSTRUCTIONS

GENERAL CONSIDERATIONS

1. Read and follow these instructions. Failure to do this could result in severe personal injury or death.
2. Additional safety instructions and/ or symbols are located throughout this manual. They serve to warn maintenance personnel and operators about potentially hazardous situations.
3. Inspect the machine for unsafe conditions daily and replace all worn or defective parts.
4. Keep work area uncluttered and well lit.
5. All covers and guards must be in place before operating this equipment.

For precautions and definitions of safety symbols, refer to the Safety Chapter of the service manual.

SERVICING EQUIPMENT

1. Only trained personnel are to operate and service this equipment.
2. Never service or clean equipment while it is in motion.

   Shut off the equipment and lock out all input power at the source before attempting any maintenance.
3. Follow the maintenance and service instructions in the manual.

SIGNS

1. Read and obey all of the warning labels, signs and caution statements on the equipment.
2. Do not remove or deface any of the warning labels, signs and caution statements on the equipment.
3. Replace any warning labels, signs and caution statements which have been removed or defaced. Replacements are available from ITW Dynatec.

ADDITIONAL CONSIDERATIONS

1. To ensure proper operation of the equipment, use specified electrical and/ or air supply sources.
2. Do not attempt to alter the design of the equipment unless written approval is received from ITW Dynatec.
3. Keep all manuals readily accessible at all times and refer to it often for the best performance from your equipment.

Declaration of incorporation

according to the EU Machinery Directive 2006/42/EG, Annex II, 1.B for partly completed machinery

Manufacturer:

ITW Dynatec,
31 Volunteer Drive
37075 Hendersonville, TN

Person residing within the Community authorised to compile the relevant technical documentation:

Andreas Pahl
ITW Dynatec GmbH,
Industriestraße 28
40822 Mettmann

Description and identification of the partly completed machinery:

Product / Article:	UFD Applicator Head
Serial no:	_____
Machine number:	_____
Project number:	UFD
Project name:	UFD Applicator Head
Function:	Delivery of hot melt adhesive to substrates

It is declared that the following essential requirements of the Machinery Directive 2006/42/EG have been fulfilled:

1.1.3.; 1.3.2.; 1.3.7.; 1.5.1.; 1.5.16.; 1.5.2.; 1.5.5.; 1.5.6.; 1.5.7.; 1.6.3.; 1.6.5.

It is also declared that the relevant technical documentation has been compiled in accordance with part B of Annex VII.

It is expressly declared that the partly completed machinery fulfils all relevant provisions of the following EU Directives:

2004/108/EC:	(Electromagnetic compatibility) Directive 2004/108/EC of the European Parliament and of the Council of 15 December 2004 on the approximation of the laws of the Member States relating to electromagnetic compatibility and repealing Directive 89/336/EEC
2006/95/EC:	(Voltage limits) Directive of the european Parliament and of the council of 12 December 2006 on the harmonisation of the laws of Member States relating to electrical equipment designed for use within certain voltage limits (codified version)

Reference to the harmonized standards used:

EN ISO 14121-1:2007	Safety of machinery - Risk assessment - Part 1: Principles (ISO 14121-1:2007)
EN 60204-1:2006-06	Safety of machinery - Electrical equipment of machines - Part 1: General requirements
EN 349:1993+A1	Safety of machinery - Minimum gaps to avoid crushing of parts of the human body
EN ISO 13850:2008	Safety of machinery - Emergency stop - Principles for design (ISO 13850:2006)

Reference of the other technical standards and specifications used:

EN ISO 12100-1/A1:2009	Safety of machinery - Basic concepts, general principles for design - Part 1: Basic terminology, methodology
EN ISO 12100-2:2003/A1	Safety of machinery - Basic concepts, general principles for design - Part 2: Technical principles

The manufacturer or his authorised representative undertake to transmit, in response to a reasoned request by the national authorities, relevant information on the partly completed machinery. This transmission takes place:

This does not affect the intellectual property rights!

Declaration of incorporation

according to the EU Machinery Directive 2006/42/EG, Annex II, 1.B for partly completed machinery

Important note! The partly completed machinery may be put into service only if it was determined, where appropriate, that the machinery into which the partly completed machinery is to be installed meets the provisions of this Directive.

Hendersonville, TN, 2012.10.11

Place, date

Judson Broome

Signature
Judson Broome
General Manager

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Chapter 1
SAFETY PRECAUTIONS

All operators and service personnel must read and understand this manual before operating or servicing equipment.

All maintenance and service on this equipment must be performed by trained technicians.

Electrical

Dangerous voltages exist at several points in this equipment. To avoid personal injury, do not touch exposed connections and components while input power is on. Disconnect, lockout and tag external electrical power before removing protective panels.

A secure connection to a reliable earth ground is essential for safe operation.

A disconnect switch with lockout capability must be provided in the line ahead of the unit. Wiring used to supply electrical power should be installed by a qualified electrician.

High Temperatures

Severe burns can occur if unprotected skin comes in contact with molten adhesive or hot application system parts.

Safety glasses, gloves and long- sleeved clothing must be worn whenever working with or around adhesive application systems.

High Pressure

To avoid personal injury, do not operate the equipment without all covers, panels and safety guards properly installed.

To prevent serious injury from molten adhesive under pressure when servicing the equipment, disengage the pumps and relieve the adhesive system's hydraulic pressure (e.g., trigger the heads, hand-held applicators, and/or other application devices into a waste container) before opening any hydraulic fittings or connections.

IMPORTANT NOTE: Even when a system's pressure gauge reads "0" psig, residual pressure and trapped air can remain within it causing hot adhesive and pressure to escape without warning when a filter cap or a hose or hydraulic connection is loosened or removed. For this reason, always wear eye protection and protective clothing.

Either of the two High Pressure symbols shown may be used on equipment.

Protective Covers

Keep all guards in place!

To avoid personal injury, do not operate the application system without all covers, panels and safety guards properly installed.

Eye Protection & Protective Clothing

It is very important that you PROTECT YOUR EYES when working around hot melt adhesive equipment!

Wear safety glasses with side shields which conform to ANSI Z87.1 or EN166.

Failure to wear safety glasses could result in severe eye injury.

It is important to protect yourself from potential burns when working around hot melt adhesive equipment.

Wear protective gloves and long-sleeved, protective clothing to prevent burns that could result from contact with hot material or hot components.

Always wear steel-reinforced safety shoes.

Safe Installation and Operation

To avoid possible failure of hoses, make sure all hoses are routed to avoid kinking, tight radius turns (8” or less) and abrasive contact. Hot-melt hoses should not have prolonged contact with heat-absorbing surfaces such as cold floors or metal troughs. These heat-absorbing surfaces can alter adhesive flow and cause incorrect calibration. Hoses should never be covered with materials that prevent heat dissipation, such as insulation or sheathing.

Read this manual before applying electrical power to the equipment. Equipment may be damaged by incorrect electrical connections.

Do not use adhesive that is dirty or that may be chemically contaminated. Doing so can cause system clogging and pump damage.

When adhesive hand-held applicators or other movable applicators are used, never point them at yourself or at any other person. Never leave a hand-held applicator’s trigger unlocked when not actually in use.

Do not operate the hopper or other system components without adhesive for more than 15 minutes if the temperature is 150 degrees C (300 degrees F) or more. To do so will cause charring of the residual adhesive.

Never activate the heads, hand-held applicators and/ or other application devices until the adhesive’s temperature is within the operating range. Severe damage could result to internal parts and seals.

Treatment for Burns From Hot Melt Adhesives

Burns caused by hot melt adhesive must be treated at a burn center.

Care should be used when working with hot melt adhesives in the molten state. Because they rapidly solidify, they present a unique hazard.
Even when first solidified, they are still hot and can cause severe burns. When working near a hot melt application system, always wear safety gloves, safety glasses and long-sleeved, protective clothing.

Always have first-aid information and supplies available.

Call a physician and/or an emergency medical technician immediately.

Service

Refer all servicing to qualified personnel only.

Explosion/ Fire Hazard

Never operate this unit in an explosive environment.

Use cleaning compounds recommended by ITW Dynatec or your adhesive supplier only. Flash points of cleaning compounds vary according to their composition, so consult with your supplier to determine the maximum heating temperatures and safety precautions.

Lockout/ Tagout

Follow OSHA 1910.147 (Lockout/ Tagout Regulation) for equipment's lockout procedures and other important lockout/ tagout guidelines.

Be familiar with all lockout sources on the equipment.

Even after the equipment has been locked out, there may be stored energy in the application system, particularly in the capacitors within the panel box. To ensure that all stored energy is relieved, wait at least one minute before servicing electrical capacitors.

Use of PUR (Polyurethane) Adhesives

PUR adhesives emit fumes (MDI and TDI) that can be dangerous to anyone exposed to them. These fumes cannot be detected by the sense of smell. ITW Dynatec strongly recommends that an exhaust hood or system be installed over any PUR system.

Consult with your adhesive manufacturer for specifics about required ventilation.

CAUTION: Because of the nature of PUR adhesives to strongly bond in the presence of moisture, care must be taken to prevent them from curing inside Dynatec equipment. If PUR adhesive solidifies in a unit, the unit must be replaced. Always purge old PUR adhesive from the system per your adhesive manufacturer's instructions and timetable. ALLOWING PUR ADHESIVE TO CURE IN A UNIT VOIDS ITW DYNATEC'S WARRANTY.

In This Manual

WARNINGS and CAUTIONS are found throughout this manual.

WARNINGS mean that failure to observe the specific instructions may cause injury to personnel.

CAUTIONS mean that failure to observe the specific instructions may damage the equipment.

Chapter 2
DESCRIPTION AND SPECIFICATIONS

Description

ITW Dynatec's MR1300 DYNAFIBER UFD™ Applicator Heads are air-operated, single or multi-module hot melt adhesive applicator assemblies with integrated basket filters which prevent particulate matter from obstructing flow through the heads.

The applicator is heated by replaceable cartridge heating elements which are controlled by an integrated sensor and electronic control. Each model can be configured for ITW Dynatec's DynaControl, MCV or Upgrade control schemes or for Allen-Bradley PLC controls. Pressure transducer ports are standard features for all applicators. A choice of adhesive inlets and an angled filter nut allows either vertical or horizontal spray.

Four standard Dynafiber UFD models supporting up to six modules, are available, ranging in width from 50mm to 150mm (2" to 6"). Their design is all metric.

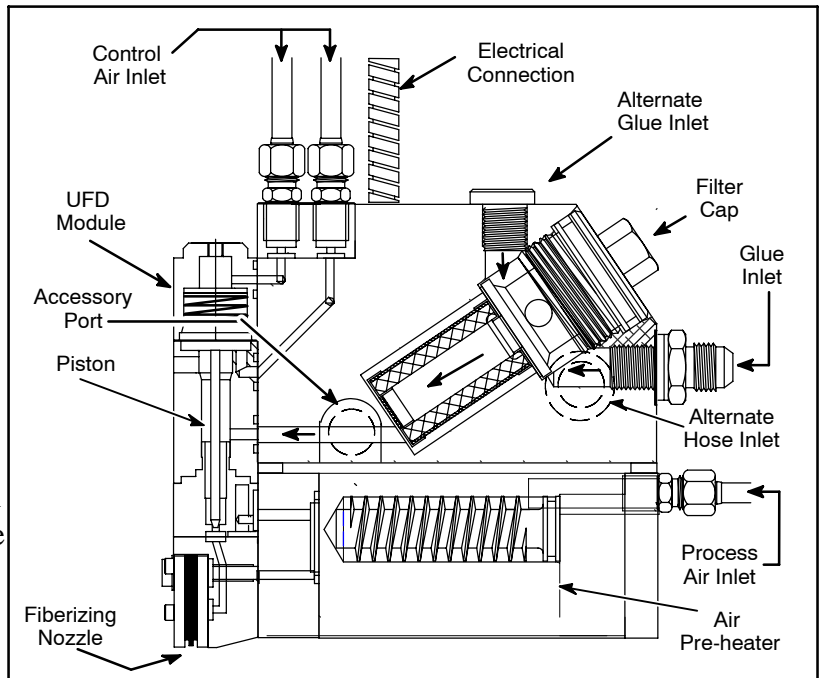
Theory of Operation

Each UFD applicator features one or more MR1300 adhesive valve modules mounted to a single service block. Each module is opened and closed by air pressure. Springs are used to keep the stem closed when no air pressure is supplied to the head. The rate of adhesive flow from the applicator is determined by the adhesive pressure applied by the adhesive application system's (ASU's) pump, the nozzle type and the stem stroke adjustment.

As shown in the illustration below, the heated adhesive supply hose may be connected at the rear of the applicator or at the top. Adhesive flows from the hose into the service block, through the filter and then to the module. Air pressure (Control Air) opens the adhesive valve, allowing adhesive to flow through the module's nozzle.

Adapters are available to allow industry-standard pressure transducers (1/2-20 thread) to be connected to monitor adhesive pressure within the service block.

On the UFD models, an air preheater is located below the service block. The preheater supplies heated air (Process Air), used to fiberize the adhesive streams, to the UFD modules. The air preheater is thermally isolated from the service block and its temperature is controlled independently.



STANDARD DYNAFIBER UFD APPLICATOR

Specifications

Environmental:

Storage/ shipping temperature . . . . . -40°C to 70°C (-40°F to 158°F)
Ambient service temperature . . . . . -7°C to 50°C (20°F to 122°F)

Physical:

Dimensions . . . . . see dimensional layout on following page
Weight (including module and solenoid valve) . . . . . Model UFD0501: 3.52 kg (7.75 lb.)
Mounting . . . . . M6 x 1 screws with insulators or 1/2" rod mount, insulated clamps, 12 to 13 mm rod

Performance:

Temperature range . . . . . 38°C to 218°C (100°F to 425°F)
Warm-up time . . . . . 15 minutes for cold start/ 5 minutes for module change only
Adhesive viscosity . . . . . 100 to 30000 mPa. sec. (100 to 30000 centipoise)
Adhesive pressure range . . . . . 68 bar maximum (1000 psi maximum)
Noise emission . . . . . 70 dB(A)

Air Requirements:

Air pressure range . . . . . 4.1 to 6.9 bar (60 to 100 psi)
Air pressure range for high speed snuffback modules (only) . . . . . 4.8 to 6.2 bar (70 to 90 psi)

Electrical:

Supply voltage . . . . . 200-240 VAC/ 1p/ 50-60 Hz

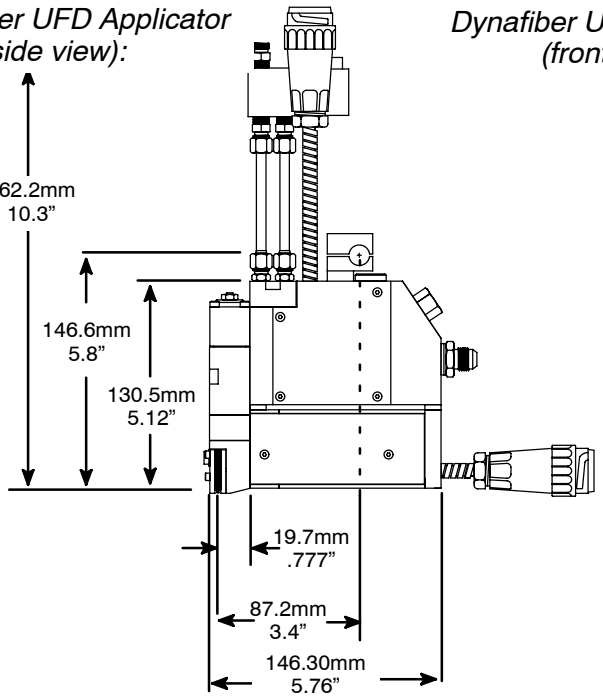
Other:

CE approval granted . . . . . yes

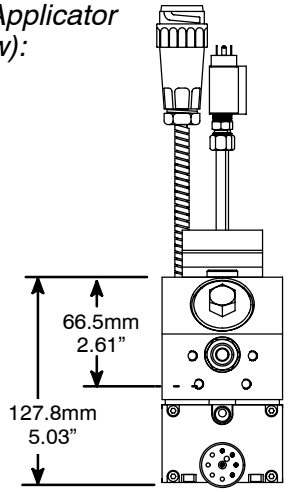
Power requirements:

Model	No. Modules	Spacing Between Nozzle Centers	Wattages		
			Adhesive Manifold	Standard Air Preheater	Slim Line Preheater
UFD0501	1	- - -	450	600	400
UFD0502	2	25.2 mm	450	600	400
UFD0753	3	25.2 mm	525	900	600
UFD1004	4	25.2 mm	600	1200	800
UFD1506	6	25.2 mm	900	1200	1200

Dynafiber UFD Applicator (side view):

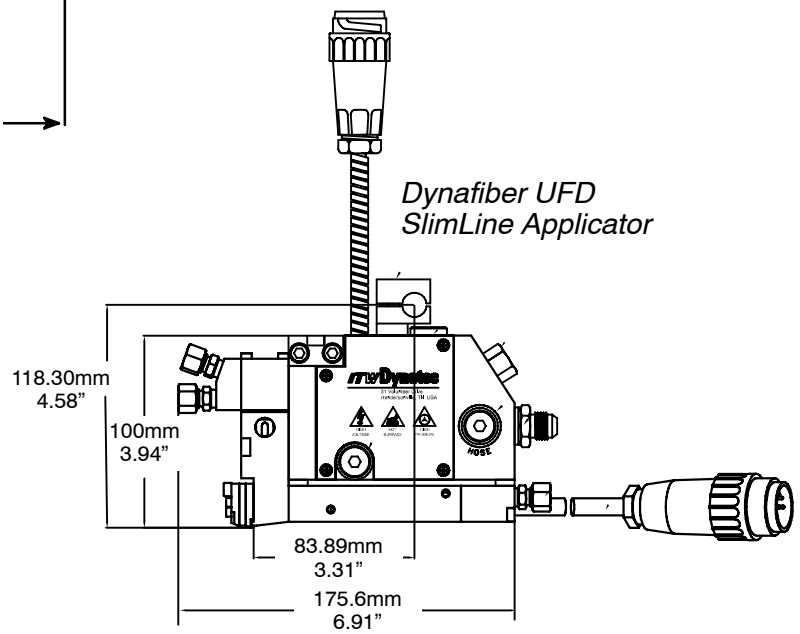


Dynafiber UFD Applicator (front view):

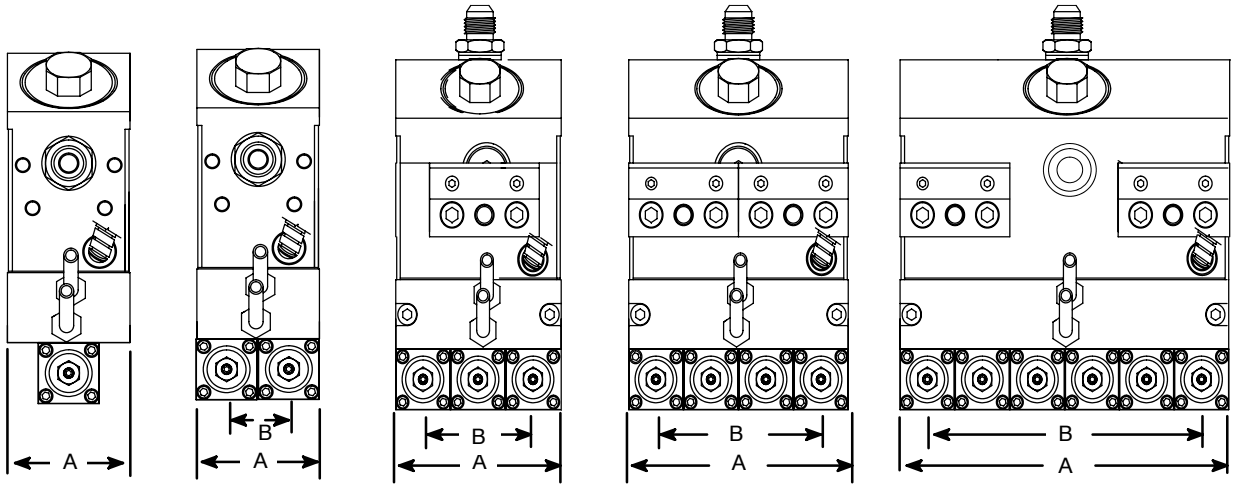


	WIDTH	CENTERS
Model No.	**A**	**B**
UFD0501	50mm 2"	n.a.
UFD0502	50mm 2"	25.2mm 1"
UFD0753	75mm 3"	50.4mm 2"
UFD1004	100mm 4"	75.6mm 3"
UFD1506	150mm 6"	126mm 5"

Dynafiber UFD SlimLine Applicator



UFD0501 **UFD0502** **UFD0753** **UFD1004** **UFD1506**



Dimensions

Chapter 3
INSTALLATION & START UP

Note: Re-read Chapter 1 "Safety Precautions" before performing any installation or start-up procedures. All installation and start-up procedures must be performed by qualified, trained technicians.

Handling and Shipping

MR1300 DYNAFIBER UFD™ applicator head assemblies are packaged within protective cushioning material in a fiber packing carton. This package may be shipped inside another carton along with other individual boxes containing components of the system.

Service Requirements

The service block's incoming electrical power and temperature control is supplied through the flexible cable exiting the adhesive supply hose cuff or through an extension cable from the ASU. The applicator has a circular, plastic connector which mates with the connector attached to this cable.

Incoming power and temperature control for the air preheater, if applicable, is supplied by a cable extension from the ASU.

Incoming module-activation air is supplied through a solenoid valve. It must be clean and unlubricated. *For conventional modules* (module option H, V, HQ or VQ in the model number, see page 6-1 for matrix), the module activation air is controlled by a four-way solenoid valve and should be separately regulated and maintained at a pressure between 4.1 to 6.9 bar (60 to 100 psi). Air lines from the solenoid valve should be 6.4mm (1/4 inch). Head air inlet ports are G 1/8 threads (1/8 NPT).

For snuffback modules (all other module options), the module activation air is controlled by a either a four-way or a five-way solenoid valve. See Appendix A and B for details on the solenoid setup.

Incoming process (preheater) air must be supplied through a pressure regulator. The air must be clean and unlubricated. Operating pressure depends on the choice of nozzle. The applicator's air supply line must be at least 1/4" O.D. For the UFD 150 applicator, 3/8" O.D. airline is recommended.

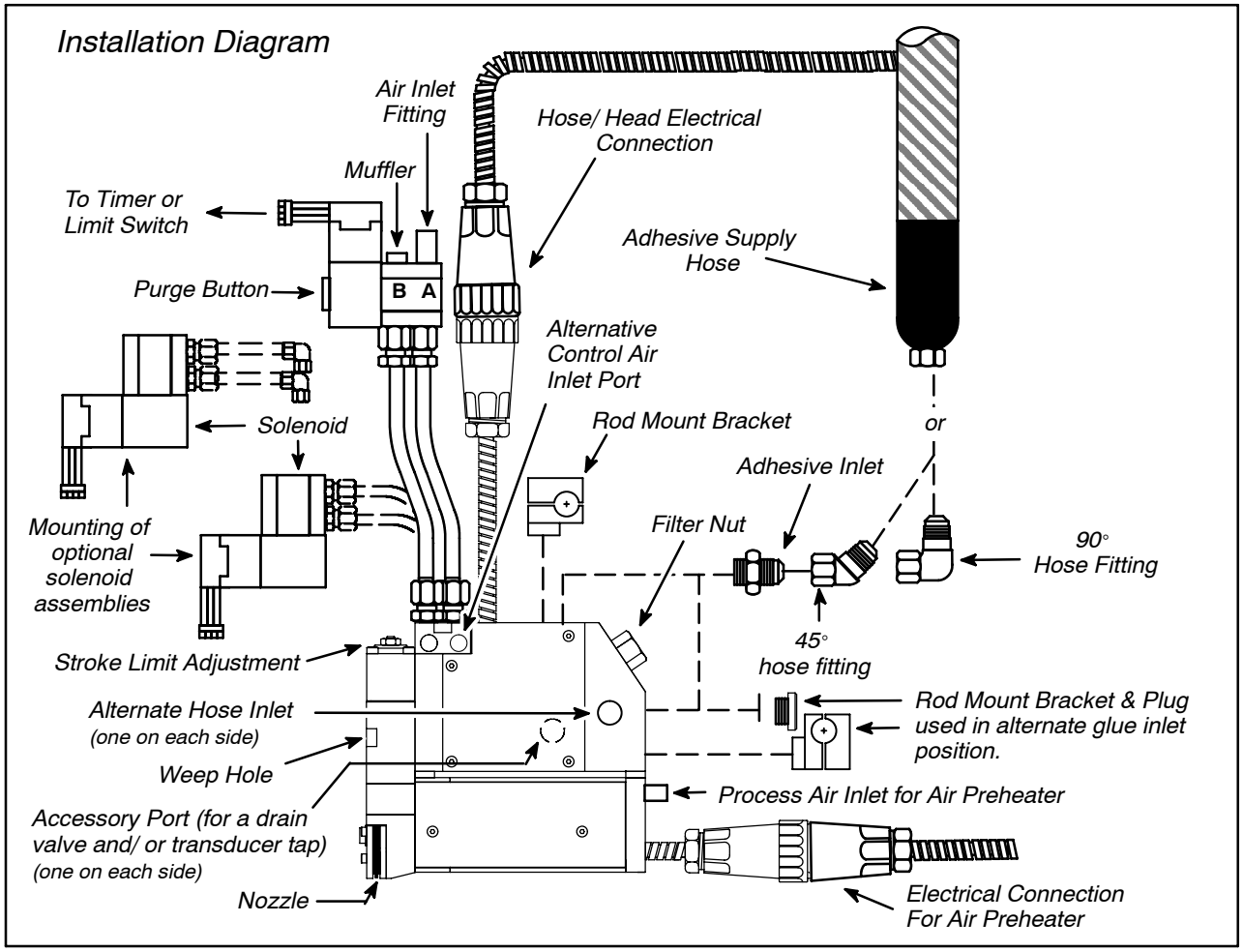
Installation Instructions

The applicator head has been tested at the factory and is ready for installation and operation. UFD applicators require at least one solenoid valve for each applicator. If your head was ordered without a solenoid valve, a 4-way valve (or a 5-way valve for snuffback modules) should be mounted so that the air lines to each applicator are as close to the same length as practical.

Note: air lines and fittings must be capable of withstanding temperatures up to 218°C (425°F). ITW Dynatec supplies Air Control Filter Coalescing Kits (PN 100055) to be used with air-operated applicators (see the Air Control Filter Coalescing Kit Manual in Appendix A of this manual).

For process (preheater) air control, the filter/ regulator kit PN 107404 is recommended. It contains a

0-50 psi air filter/ regulator combination and a liquid-filled gauge for accurate process air control. See the Process (Preheater) Air Control Filter/ Regulator information in Appendix B.



See the diagram above for location of the components referred to in the following section.

1. The applicator should be supported from brackets that permit lateral and vertical adjustments. Mount the applicator on a 12mm to 13mm rod or bracketry using the 6 mm screws and insulators provided. Allow access to the filter. Be sure that the stroke limit adjustment screws are accessible and that the “weep” holes are visible for periodic inspection. Leave sufficient clearance to install a pressure transducer, if applicable, and allow access to a drain valve, if installed.

2. If a pre- or post- filter pressure transducer is to be utilized: install the supplied adapter into the desired accessory port. Thread the transducer into the adapter (transducer adapter has 1/2-20 thread). Follow the transducer manufacturer’s recommendations for torque specifications. Note: the alternate hose inlets on either side of the applicator can also be used for the transducer adapter.

3. Before making the adhesive connection to the applicator, align the adhesive supply hose with its electrical connector oriented in relation to the electrical connector on the top of the applicator.

Connect the swivel fitting of the hot melt hose to the adapter on the service block, using either the inlet port located below the filter nut or the port located on the top of the applicator (beside the electrical connection in the diagram). When tightening the hose fitting, hold the hose cuff to prevent the hose core from rotating.

4. Make the electrical connection from the hose to the applicator by connecting the female connector of the hose to the male connector of the applicator.

5. Connect the spray air line to the preheater using the adapter provided. Do not overtighten the compression fitting, or the air line could collapse, reducing air flow.

6. Make the electrical connection from the extension cable to the preheater by connecting the female connector of the cable to the male connector of the preheater.

7. When connecting the air lines to the applicator, the air line which has air pressure to the module when the solenoid is OFF is the closing air line. See Appendix A and B for details and diagrams of solenoid setup.

CAUTION: Do not use lubricating oil with the air supply as applicators are lubricated at the factory and do not require lubrication when used in production. Where oil is present in the air supply, a coalescing filter (Dynatec PN 100055) must be installed between the standard air regulator/ filter and the Dynafiber UFD applicator.

8. It is advisable to check the temperature of the applicator. This can be done through the temperature readout of the adhesive supply unit. Surface temperature may be checked with a separate pyrometer and surface probe or with a dial thermometer. Turn the system power switch ON. Permit the applicator to warm up at least 15 minutes (5 minutes for module change) before reading temperature.

9. Purge the applicator of air and oil. Turn the applicator ON electrically and pneumatically.

WARNING HIGH PRESSURE

During the purging procedure, hot adhesive and oil can come out of the head under high pressure. Wear safety glasses, gloves and protective clothing.

WARNING

Use a stable, deep container to collect hot-melt adhesive and/ or oil.

Remove the nozzle from the module. Place a heat resistant container under the module to collect the material that drains from the applicator. Manually open the solenoid by pushing (with a small screwdriver or other tool) the purge button located on the solenoid coil. Continue to hold in the purge button until all air and oil have drained and only adhesive flows from the module.

10. Replace the nozzle, orienting the nozzle tip so it points toward the substrate.

Special Installation Notes on Optional PN 112690, 112440 & 112934 HiSpeed, Vertical Snuffback, Direct-Air Module **(Option Code C,D, G see page 6-1)**

The PN 112690, 112440 & 112934 modules are designed for the solenoid valve to be connected directly to the module air cylinder. Fittings and tubing are included with the module assembly.

If alternative fittings or tubing are desired, the recommended tubing is aluminum or stainless steel, 1/4" OD x 3/16" ID. For best performance, the tubing length should be as short as practical (recommended length is 2.5" min. to 6" max.). The port threads in the module are 1/8-27 NPT.

If necessary for clearance, the air cylinder can be rotated to re-position the tube fittings. Remove the four cap screws securing the air cylinder, and without removing the air cylinder, rotate to the desired position. Replace the cap screws and torque crosswise, first to 5 in-lb., then to 20 in-lbs.

Recommended operating air pressure is 70-90 psi.

Operation of Optional Drain Valve **(Option Code A, see page 6-1)**

UFD applicators with the "A" option are equipped with a drain valve located on the right side of the applicator. This drain valve allows residual adhesive pressure to be relieved prior to maintenance or repair of the applicator. During applicator installation, the drain valve can be relocated to the left side of the applicator for access, if necessary.

The drain valve consists of a valve body with a rotatable outlet collar that directs the flow of adhesive. A plug is located inside the body, retained by a snap ring to prevent the plug from being fully removed.

Operation

1. Ensure that all pumps in the ASU (adhesive supply unit) are turned off. Power down the ASU or disable the applicator and preheater zones at the control panel. Disconnect all electrical cables from the applicator.

WARNING HOT SURFACE & ADHESIVE

The ASU will still be hot when this procedure is being done. Use insulated gloves and protective clothing.

2. Place a suitable container under the applicator to catch adhesive. Using pliers, rotate the knurled outlet collar of the drain valve so that the exit hole points toward the container, and away from any personnel. Stand away from the valve while the adhesive pressure is being relieved.

3. Using a 19mm (3/4") wrench on the valve body to prevent rotation, insert a 5mm hex wrench into the plug. Rotate the plug counter-clockwise to allow adhesive to flow through the valve.

4. If no adhesive flows from the drain valve, do not assme that there is no adhesive pressure in the

cont.

system. Always verify that adhesive pressure has been completely relieved before proceeding with maintenance or repairs. Never remove the snap ring in the end of the valve, as this would allow the plug to be removed, possibly resulting in personal injury.

5. After maintenance or repairs are complete, tighten the plug securely. Wipe any adhesive from the outer surface of the drain valve.

Purging Adhesive Through the Applicator

This procedure may be used anytime the operator wishes to purge old adhesive from the applicator and replace it with fresh adhesive. For example, this procedure could be used in instances where the adhesive system has been held at temperature for an extended time without running, such as during a production line start-up.

WARNING HOT SURFACE & ADHESIVE

The machinery will still be hot when this procedure is being performed. Use insulated gloves and protective clothing.

Procedure

1. Remove all nozzles. Place a suitable container under the applicator to catch adhesive.

2. Activate the modules and manually run the adhesive pump to purge the hoses and heads of old adhesive. Purge until the adhesive exiting the modules is fresh.

3. Check system pressure to see if filters are clogged and need to be changed.

4. Replace the nozzles and check the adhesive flow through them. Compare to target flow.

5. Check the nozzle spray pattern.

6. Clean any nozzles that do not spray properly and check the spray pattern again.

Chapter 4
MAINTENANCE

Note: Re-read Chapter 1 "Safety Precautions" before performing any maintenance procedures. All maintenance procedures must be performed by qualified, trained technicians.

The applicator requires no regular maintenance. Wipe the applicator clean of adhesive with a clean cloth while still hot at the end of each shift. Inspect the applicator periodically as outlined in the following table.

Maintenance Schedule

ITEM	CHECK	FREQUENCY	ACTION
Adhesive supply hose fitting connection	Inspect for leaks	As required	Tighten if loose
Air supply connections	Inspect for leaks	As required	Tighten if loose
Weep holes	Inspect for adhesive	As required	Replace seal cartridge or valve module
Nozzle performance	Inspect all nozzles for proper operation	As required	Clean nozzle or re-adjust stroke limiter
Built-in filter	Inspect for cleanliness	Monthly or as required by use	Replace filter element

Stroke Limit Adjustment

All conventional MR1300 applicators are equipped with a stroke limit adjustment. For snuffback valves, the stroke is factory pre-set and no field adjustment is necessary.

Whenever the conventional module is disassembled, the stroke limit must be adjusted using the following procedure:

1. Bring applicator up to operating temperature.

2. Loosen the lock nut (see illustration on next page) located on the top of the module.

3. Bottom the stroke adjustment screw lightly.

CAUTION: Tightening the stroke adjustment to shut OFF the nozzle will cause damage to the applicator.

4. Back off the screw one-half to one turn.

cont.

5. While holding the screw in position, tighten the lock nut.

Purging Hot Adhesive Under Pressure

WARNING HIGH PRESSURE

During the purging procedure, hot adhesive can come out of the applicator under high pressure. Wear safety glasses, gloves and protective clothing.

Many maintenance and troubleshooting procedures potentially expose the maintenance technician to dangerous hot adhesive which is under pressure. Follow this procedure to release the adhesive pressure in the applicator before performing such maintenance.

The applicator should be at operating temperature. Turn the ASU's pump/ motor OFF.

Relieving Adhesive Pressure Manually

1. Push the purge button located on the side of the air solenoid coil.
Or, if the ASU filter block is equipped with a drain, adhesive pressure may be relieved at the ASU.

Relieving Adhesive Pressure by using the Optional Drain Valve (if applicable)

1. Place a heat-resistant container under the drain valve. If necessary, rotate the drain valve's opening by turning its knurled collar so that the opening is aiming downward into the container.

2. With a 5mm hex key screwdriver (allen wrench), slowly loosen the drain valve's purge screw (do not try to remove it) and allow the adhesive and residues to flow out of applicator. Be sure to stand clear since there may be residual adhesive pressure in the applicator.

3. Turn ON the ASU's pump/ motor. When all the contaminants have run out and the glue is clean, re-tighten the screw.

Replacement of the Built-in Filter

WARNING HIGH PRESSURE

During this procedure, hot adhesive can come out of the applicator under high pressure. Wear safety glasses, gloves and protective clothing.

The applicator must be at operating temperature. Turn the ASU's pump/ motor OFF.

Procedure for Basket-type Filter (Filter Codes A & B)

1. Place a heat-resistant container under the module(s).

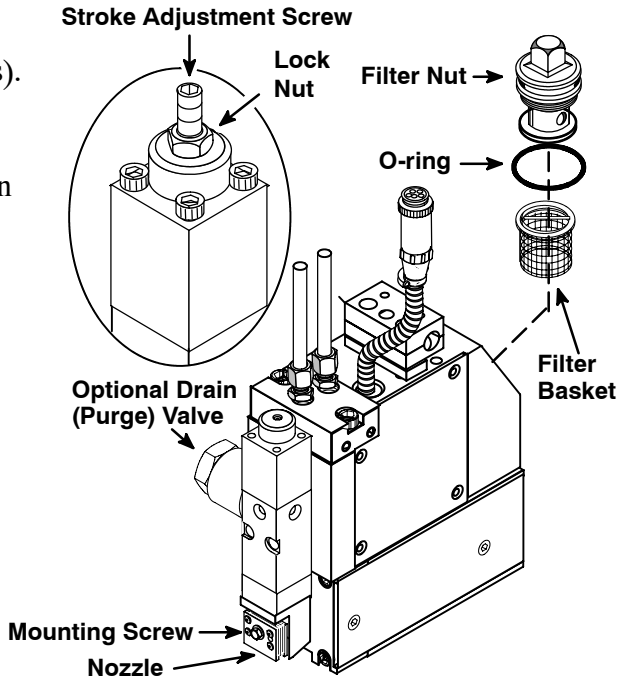
2. Relieve the adhesive pressure by following the "*Purging Hot Adhesive Under Pressure"* procedure on the preceding page.

3. Unscrew and remove the filter nut.

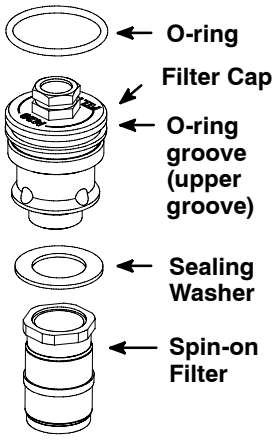
4. With needle nose pliers, pull the filter basket out of the manifold.

5 Replace the o-ring on the filter nut. Apply o-ring lubricant (PN N07588) to the new o-ring.

6. Apply a coat of anti-seize to the threads of the filter nut.



7. Re-install the filter basket and the filter nut. Tighten the filter nut until it is seated firmly, taking care not to cut the o-ring.



Procedure for Spin-on Filter (Filter Code C)

1. Place a heat-resistant container under the module(s).

2. Relieve the adhesive pressure by following the "*Purging Hot Adhesive Under Pressure"* procedure on the preceding page.

3. Unscrew and remove the filter cap.

4. Unscrew the filter from the filter cap. Remove and discard the old sealing washer and o-ring.

5. Make sure the mating surface of the filter cap is clean. Install a new sealing washer, filter and o-ring. Torque the filter to 40-50 in-lbs.

6. Apply a coat of anti-seize to the threads of the filter cap.

cont.

7. Re-install the filter and the filter cap. Tighten the filter cap until it is seated firmly, taking care not to cut the o-ring.

UFD Nozzle Cleaning

Occasionally nozzles can become clogged with char, residue or other foreign material. This can result in the decrease or even stoppage of glue flow. Use one of the following two methods to clean nozzles.

Cleaning by High Temperature Oven

For routine nozzle cleaning, a high temperature oven should be utilized. An optional UFD Nozzle Cleaning Oven (PN 107307 or 107306) is available from ITW Dynatec. Instructions for the use of the Dynatec oven are outlined in Appendix D of this manual.

However, after several cleanings in a oven, nozzles must be disassembled and soaked in solvent in order to remove all contaminants. Perform the following procedure as needed:

Cleaning by Nozzle Disassembly

WARNING HIGH PRESSURE

During this procedure, hot adhesive can come out of the applicator under high pressure. Wear safety glasses, gloves and protective clothing.

The nozzle must be at operating temperature when cleaned. Turn the ASU OFF. Turn adhesive pressure OFF (zero).

1. Relieve the adhesive pressure by following the "*Purging Hot Adhesive Under Pressure"* procedure on the preceding pages.

2. Remove the nozzle from the module by loosening its mounting screw (see illustration above).

3. Remove the mounting screw and the four cap screws from the nozzle.

4. Separate the nozzle from its front and rear mounting plates.

5. Soak the nozzle plates in solvent. If necessary, use a non-metallic brush to remove any foreign material, being careful not to damage any of the nozzle's orifices. Be sure to remove all residue before re-assembling.

Chapter 5
TROUBLESHOOTING & SERVICE

Note: Re-read Chapter 1 Safety Precautions" before performing any troubleshooting or repair procedurs. All troubleshooting or repair procedures must be performed by qualified, trained technicians.

Modules Which Are Not Serviceable

The following modules cannot be customer-serviced:
PN 112440 Module, HiSpd SB, Hor, Dir Air
PN 112444 Module, HiSpd SB, Hor, Bck Air

In General

If failure occurs, first check all the electrical and pneumatic connections. Verify that the main power switch is ON at the ASU. Verify that the pump is ON and the application heads have sufficient air pressure. Verify that the temperature controller is in operation and that the setpoints are correct for the application. Check to see if all components are heating properly.

Troubleshooting Guide

Problem	Possible Cause	Solution
Module does not open	1. Temperature adjustment of head is too low.	1. Check temperature adjustment.
	2. Inoperative solenoid.	2. Push the solenoid's manual button. If it opens, the problem is electrical.
No adhesive flowing out of module	1. Nozzle is clogged.	1. Clean or replace nozzle.
	2. Filter element is dirty.	2. Replace filter, see instructions in Ch. 4 Maintenance.
	3. Module seals (o-rings) are inoperative.	3. Check module o-rings, see instructions in this chapter: "Module Assembly Instructions."
	4. ASU's hopper is empty.	4. Re-fill hopper.
	5. Adhesive is too cold.	5. Adjust temperature, see ASU manual.
	6. Solenoid valve is not opening.	6. Check solenoid valve.
	7. Piston stroke is too low.	7. Adjust the stroke limit, see Ch. 4 Maintenance.

Problem	Possible Cause	Solution
Hot melt is coming out of the module's "weep" holes	1. Module seals are damaged.	1. Replace seal cartridge or module, see instructions in this chapter.
Applicator does not reach operating temperature	1. Hopper temperature setpoint is too low.	1. Change setpoint, see ASU manual.
	2. Inoperative heater cartridge.	2. Check/ replace heater cartridge, see instructions in this chapter.
	3. Inoperative temperature sensor.	3. Check/ replace sensor, see instructions in this chapter.
Applicator is too hot	1. Applicator temperature setpoint is too high.	1. Change setpoint, see ASU manual.
	2. Inoperative temperature sensor.	2. Check/ replace sensor, see instructions in this chapter.
Air escapes from module	1. Inoperative piston o-ring.	1. Replace o-ring, see instructions in this chapter.
	2. O-rings located between module and service block are inoperative.	2. Remove module from block (see instructions in this chapter: "Replacement of Module") and replace o-rings.
Application pattern is erratic	1. Adhesive pressure is too low.	1. a. *For units without speed control:* increase adhesive pressure at ASU. b. *For units with speed control (tach follower):* adjust pump speed control.
	2. Adjust pattern controller.	2. See pattern controller manual for proper adjustment.

Recommended Torque Values for Modules and Nozzles

The following torque ranges are at room temperature (approx. 77°)**.** Do not exceed their upper limits.
For module mounting screws: 25-35 in./lbs (2.8-4.0 Nm).
For the UFD nozzle mounting screw: 20-25 in./lbs (2.3-2.8 Nm).

Replacement of the Standard Module

Turn the ASU OFF. Turn all adhesive and air pressure OFF.

WARNING HIGH PRESSURE

During this procedure, hot adhesive can come out of the applicator under high pressure. Wear safety glasses, gloves and protective clothing.

1. Place a heat-resistant container under the manifold.

2. Relieve the adhesive pressure:
   a. *Using the drain valve (if applicable):*
   Rotate the drain valve collar so its opening is directed at container. Use a 5mm hex wrench to open drain valve to relieve adhesive pressure.
   b. *By manually opening the module(s):*
   Push the purge button located on the side of the air solenoid coil. Or, if the ASU filter block is equipped with a drain, adhesive pressure may be relieved at the ASU.

3. Remove the module from the service block by removing the two mounting screws on the front of the module with a hex key screwdriver (allen wrench). Make sure that the old o-rings located on the back of the module are also removed (the new module will include new o-rings).

4. Mount the new module using a 4mm (5/32”) hex key on the mounting screws.

Module Assembly Instructions for the PN 104993 UFD Module

Use the component illustration and parts list in Chapter 6 as a reference with the following instructions for the PN 104993 UFD module. ITW Dynatec has a Module Seal Kit available (PN 105150) which contains the components necessary to rebuild one module, including the seal cartridge assembly, all o-rings, springs and seal lubricant.

1. During re-assembly, coat all o-rings with a liberal amount of High Temp Lube (PN N07588).

CAUTION: DO NOT SUBSTITUTE! Failure to use High Temp Lube (N07588) may result in premature seal breakdown and leakage of glue from the applicator.

2. Insert the new seal cartridge assembly into the module body. (Note that there are two holes in the seal cartridge cavity in the module body. One hole accepts the roll pin in the seal cartridge. The other is an air hole which must line up with the air hole in the seal cartridge.) Align the roll pin in the seal cartridge with the corresponding hole in the top of the module body. Press the seal cartridge into position. The air hole in the seal cartridge must align with the air hole in the module body for the valve to function properly.

3. Place a new piston o-ring onto the stem assembly and slowly insert the stem assembly into the seal cartridge.

4. Place the two new springs on top of the piston. The smaller spring will nest inside the larger spring.

5. Loosen and back out the adjusting screw in the air cylinder. Place the air cylinder over the springs and piston and press down into place. Take care not to dislodge the springs or damage may result. Secure the air cylinder with the four mounting screws.

6. Place new o-rings on the seat assembly and insert the seat assembly into the bottom of the module body. Secure with the four mounting screws. Spring resistance will be felt as the screws are tightened. Tighten the screws evenly to avoid binding.

7. Place new o-rings into the grooves on the rear face of the module and mount the module onto the service block.

8. Allow five minutes for the module to heat. Adjust the stem stroke to the desired setting.

To disassemble, reverse above order.

Module Assembly Instructions for the PN 106224 UFD or 106226 HiTemp UFD Module

Use the component illustration and parts list in Chapter 6 as a reference with the following instructions for the PN 106224 or 106226 module. ITW Dynatec has a Module Seal Kit available (PN 105150/ 803012 for Hi Temp) which contains the components necessary to rebuild one module, including the seal cartridge assembly, all o-rings, springs and seal lubricant.

1. During re-assembly, coat all o-rings with a liberal amount of High Temp Lube (PN N07588).

CAUTION: DO NOT SUBSTITUTE! Failure to use High Temp Lube (N07588) may result in premature seal breakdown and leakage of glue from the applicator.

2. Insert the new seal cartridge assembly into the module body. (Note that there are two holes in the seal cartridge cavity in the module body. One hole accepts the roll pin in the seal cartridge. The other is an air hole which must line up with the air hole in the seal cartridge.) Align the roll pin in the seal cartridge with the corresponding hole in the top of the module body. Press the seal cartridge into position. The air hole in the seal cartridge must align with the air hole in the module body for the valve to function properly.

3. Place a new piston o-ring onto the stem assembly and slowly insert the stem assembly into the seal cartridge.

4. Place the two new springs on top of the piston. The smaller spring will nest inside the larger spring.

5. Loosen and back out the adjusting screw in the air cylinder. Place the air cylinder over the springs and piston and press down into place. Take care not to dislodge the springs or damage may result. Secure the air cylinder with the four mounting screws.

6. *a. Follow this step for new-style modules (those built after 11/12/07):* Place new o-rings on the vertical adapter and insert the seat assembly into the bottom of the module body. Spring resistance will be felt as the screws are tightened. Tighten the screws evenly to avoid binding.

6. *b. Follow this step for old-style modules (those built prior to 11/12/07):* Place new o-rings on the seat assembly and insert the seat assembly into the bottom of the module body. Place new o-rings on the vertical adapter. Place the brass seal and the vertical adapter onto the seat assembly and secure with the four mounting screws. Spring resistance will be felt as the screws are tightened. Tighten the screws evenly to avoid binding.

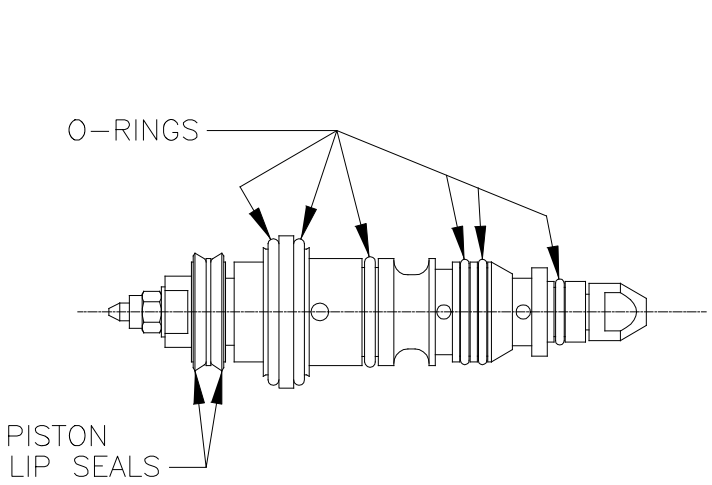
7. Place new o-rings into the grooves on the rear face of the module and mount the module onto the service block.

8. Allow five minutes for the module to heat. Adjust the stem stroke to the desired setting.

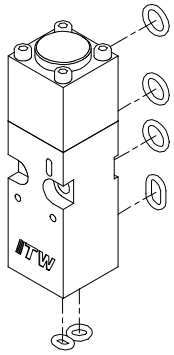
To disassemble, reverse above order.

Module Assembly Instructions for the PN 110840 Horizontal SB and PN 111074 Vertical SB UFD Modules

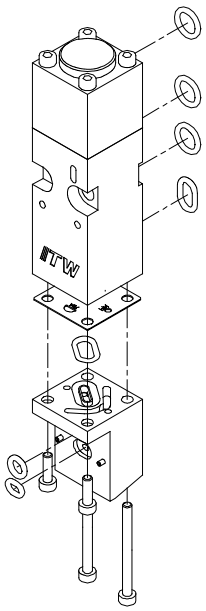
Use the component illustrations and parts lists in Chapter 6 (pages 6-34 & 6-35) as a reference with the following instructions for the PN 110840 & 111074 SB UFD modules. ITW Dynatec has a Module Rebuild Kit available (PN 110889) which contains the components necessary to rebuild one module, including the valve cartridge assembly and o-rings.



UFD SB (Snuff-Back) Valve Cartridge



PN 110840
Horizontal SB
UFD Module



PN 111074
Vertical SB
UFD Module

1. Disassemble the UFD SB module. Discard the old valve cartridge and thoroughly clean the remaining parts.

2. Lightly coat the o-rings on the new valve cartridge (included in the kit and shown above) with a high-temperature lubricant, such as PN 001U002 Dow 112 or PN 001V078 Krytox GPL206. Note: Take care to keep lubricant off of the air piston lip seals.

CAUTION: DO NOT SUBSTITUTE! Failure to use high-temp lube may result in premature seal breakdown and leakage of glue from the applicator.

3. Carefully install the new valve cartridge into the SB module body, pushing it in until it is firmly seated.

4. Making sure that the air cylinder and piston lip seals are clean and dry, carefully install the air cylinder over the piston and onto the valve cartridge.

5. Align the air cylinder's external o-ring with the three external o-rings in the SB module's body.

6. Secure the air cylinder with the four M3 x 35mm long cap screws dis-assembled in step 1.

7. Torque the cap screws cross-wise to 20 inch-lb. (2.3 NM).

8. Install new external o-rings (included in kit) on the SB module with a minimal coating of high-temp lubricant.

The module is now ready for installation and service.

To disassemble, reverse above order.

Testing Resistance of Heater Cartridges

1. Turn the ASU OFF or disable the head (applicator) and preheater zones at the control panel. Disconnect all electrical cables from the head. Turn all pumps OFF and relieve system pressure before proceeding.

2. Unplug the electrical cable from the adhesive supply hose or extension cable to expose the pins in the cable.

3. Use the schematics in Ch. 8 to determine the correct pins used to measure the heater resistance. Compare the reading with the values given in the charts below.

Service Block Heaters

The service block of the Dynafiber UFD applicators contain three 10mm heaters wired in parallel. The parallel resistance values of these heaters is listed below:

Applicator Model	Parallel Resistance Minimum	Maximum
UFD050 Series	115.8	141.9
UFD075 Series	98.7	120.7
UFD100 Series	86.9	106.4
UFD150 Series	57.9	70.9

Air Preheater Heaters

The air preheater contains three or more heaters wired in parallel. One heater, located at the front of the preheater, is 8mm diameter. The remainder of the heaters, located in the spiral tubes at the rear of the preheater, are 10mm diameter. The number of 10mm heaters depends on the width of the applicator. The parallel resistance values of these heaters is listed below:

Applicator Model	Standard Models Parallel Resistance Minimum	Maximum	Slim Line Models Parallel Resistance Minimum	Maximum
UFD050 Series	86.9	106.4	129.6	158.4
UFD075 Series	57.6	70.4	86.9	106.4
UFD100 Series	43.3	53.2	64.8	79.2
UFD150 Series	43.3	53.2	43.3	53.2

If one of the heaters is not functional, the parallel resistance as measured at the contact pins will be *higher* than the range given in the chart. To determine which heater is not functional, remove the cover plate and test each heater independently.

Testing Resistance of the RTD Temperature Sensor (options D, M, N and P in the model number or in the matrix on page 6-1)

1. Turn the ASU OFF or disable the head (applicator) and preheater zones at the control panel. Dis connect all electrical cables from the head. Turn all pumps OFF and relieve system pressure before proceeding.

2. Unplug the electrical cable from the adhesive supply hose or extension cable to expose the pins in the cable.

Note: The resistance value (Ohms) of the temperature sensor depends on the temperature of the sensor at the time it is being tested. All values listed in the table below are given at 25°C (77°F). To correct for ambient temperatures other than 25°C, see Appendix 4 for complete resistance-temperature tables for the RTD sensors.

3. Using the schematics in Chapter 8 as a reference, measure the resistance of the sensor and compare to the values in the table below. A tolerance of ± 5% is allowed for ambient temperature differences. A sensor that tests outside of this range must be replaced.

Applicator Control	Sensor Resistance @ 25°C
DynaControl (option D)	110 ohms
MCV (option M)	110 ohms
Upgrade (Ni, option N)	138 ohms
Allen-Bradley (option D)	110 ohms
Upgrade (Pt, option P)	110 ohms

Testing the J-type Thermocouple Temperature Sensor (control option L in the model number or in the matrix on page 6-1)

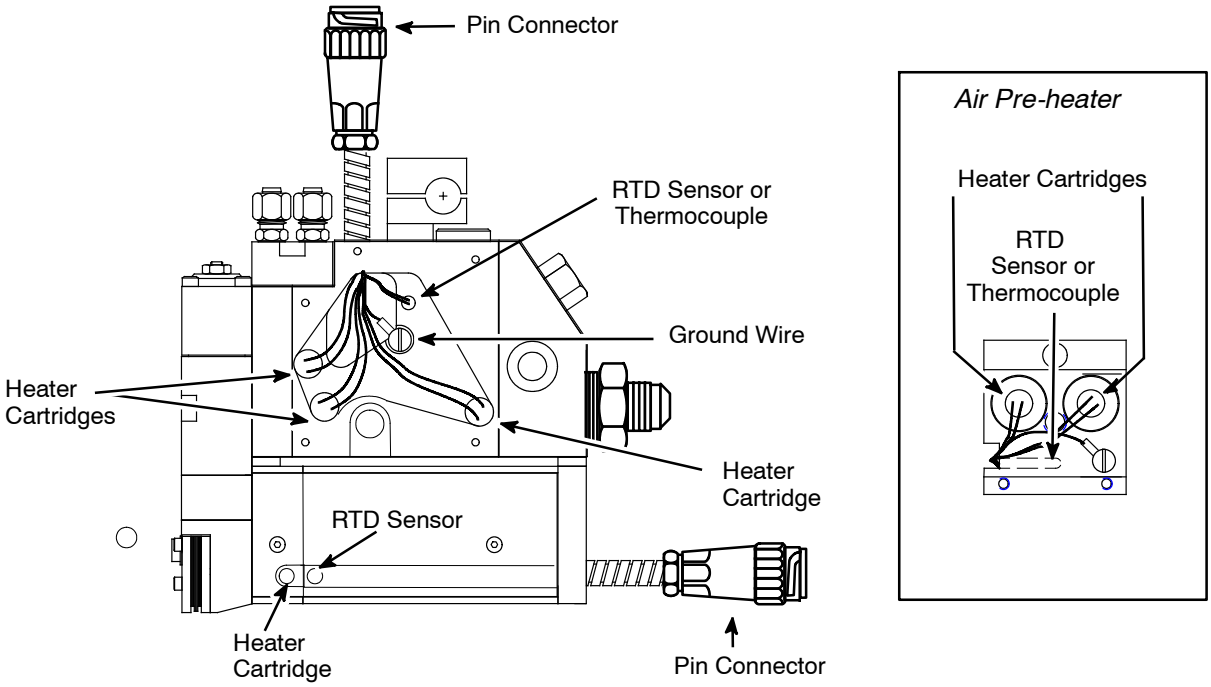
1. Turn the ASU OFF or disable the head (applicator) and preheater zones at the control panel. Disconnect all electrical cables from the head. Turn all pumps OFF and relieve system pressure before proceeding.

2. Unplug the electrical cable from the adhesive supply hose or extension cable to expose the pins in the cable.

3. Using the schematics in Chapter 8 as a guide, first measure the resistance across the thermocouple leads to check for an open junction. The resistance should be zero (allowing for the resistance of the test leads). If the resistance is high or infinite, an open junction or loose connection is indicated. If all the connections are secure, replace the thermocouple.

To test the thermocouple element further, specialized equipment is required which is outside the scope of this manual.

Replacement of Heater Cartridge or Sensor



Heater, RTD Sensor or Thermocouple Replacement Diagram

Replacement of Service Block Heater Cartridges

1. Turn OFF the ASU and relieve all system pressure before proceeding.

2. Disconnect the service block's electrical cable assembly from the hose and disconnect the preheater's cable assembly from its cable extension.

3. Remove the four screws holding the left-side cover plate. Remove the plate. Pull the ceramic terminal blocks from the wiring cavity and disconnect the heater leads from the terminal blocks.

4. Locate the non-functioning heater with a multimeter. Remove and replace the heater. Apply a thin film of thermal paste to the new heater before installation.

5. Reconnect the three heaters to the terminal blocks, making sure that no strands of wire are protruding from the terminal blocks.

6. Place the terminal blocks back into the wiring cavity. Replace the left-side cover plate.

Replacement of Air Preheater Heater Cartridges

See illustration on previous page for parts locations.

1. Turn OFF the ASU and relieve all system pressure before proceeding.

2. Disconnect the service block's electrical cable assembly from the hose and disconnect the preheater's cable assembly from its cable extension.

3. Remove the M4 screws and M5 screws from the wire cover. Remove the wire cover.

4. Disconnect the heater leads from the ceramic terminal blocks.

5. Locate the non-functioning heater with a multimeter.

6. a. If one of the 10mm heaters is non-functioning, remove and replace it at this time. Apply a thin film of thermal paste to the new heater before installation.

   b. To replace the 8mm heater: remove the two M3 screws holding the left-side cover. Remove the cover. Remove and replace the 8mm heater. Apply a thin film of thermal paste to the new heater before installation.

7. Reconnect all heaters to the terminal blocks, making sure that no strands of wire are protruding from the terminal blocks.

8. Replace the left-side cover if removed. Replace the wire cover.

Replacement of Service Block Temperature Sensor

Note: a High-Temp Splice Kit (PN 102645) is required for this procedure.

See illustration on previous page for parts locations.

1. Disconnect the service block's electrical cable assembly from the hose and disconnect the preheater's cable assembly from its cable extension.

2. Remove the four screws holding the left-side cover plate. Remove the plate.

3. Pull the sensor out of the service block.

4. Cut the old sensor wires off as close to the sensor as possible.

5. Apply a thin film of thermal paste to the new sensor and place it in the service block. Trim the lead wires so that they overlap the old sensor wires by one to two inches. Strip the ends of all four wires.

6. Use the high-temp splice kit to connect the new sensor to the old sensor wires.

7. Place the wires in the wiring cavity and replace the left side cover.

Replacement of Air Preheater Temperature Sensor

Note: a High-Temp Splice Kit (PN 102645) is required for this procedure.

See illustration on page 5-10 for parts locations.

1. Disconnect the service block's electrical cable assembly from the hose and disconnect the preheater's cable assembly from its cable extension.

2. Remove the left-side cover plate.

3. Pull the sensor out of the preheater.

4. Cut the old sensor wires off as close to the sensor as possible.

5. Apply a thin film of thermal paste to the new sensor and place it in the service block. Trim the lead wires so that they overlap the old sensor wires by one to two inches. Strip the ends of all four wires.

6. Use the high-temp splice kit to connect the new sensor to the old sensor wires.

7. Replace the left side cover plate.

Re-Assembly Procedures and General Cautions

Unless noted, head re-assembly is simply the reverse sequence of the disassembly procedures. However, the following "cautions" should be followed (whenever they apply) for proper re-assembly:

CAUTION: In general, all *O-RINGS AND SEALS* must be replaced whenever hot-melt equipment is re-assembled. All new o-rings must be lubricated with o-ring lube (PN N07588).

CAUTION: *TAPERED PIPE THREADS* are found on air line fittings used with the pump air supply and on the outlet filter manifold. Apply thread sealant (PN N02892) whenever tapered pipe threaded parts are re-assembled.

CAUTION: *SOME FITTINGS* used for adhesive on hot melt equipment have straight threads and o-ring seals. Use of thread sealant is not necessary with these parts, but the o-ring seals should be clean and lubricated. Tighten straight-threaded parts and fittings until their shoulders are firmly seated. Excessive torque may damage straight-threaded parts and the use of power wrenches is not recommended.

CAUTION: *HOT-MELT RESIDUE* must be cleaned from parts before they are re-assembled, particularly from threaded parts. As a precaution against adhesive residue preventing proper re-assembly, threaded parts must always be re-tightened at operating temperature.

Chapter 6
COMPONENT ILLUSTRATIONS & BILLS OF MATERIAL

WARNING

All parts must be periodically inspected and replaced if worn or broken. Failure to do this can affect equipment's operation and can result in personal injury.

The following pages provide exploded-view reference drawings to assist users of the UFD adhesive applicators to identify parts and aid in servicing the equipment.

Note: most common nuts, bolts and fasteners can be obtained locally at your hardware store. Specialty fasteners are available by contacting Dynatec's Customer Service.

UFD Applicator Model Designation Guide

UFD XXX X X X X X X X X

Example: UFD 100 4 V 4 A 1 D 2 S

Service Block Length:
050 1 = 50mm (1 port/1 solenoid)
050 2 = 50mm (2 port/1 solenoid)
075 3 = 75mm (3 port/1 solenoid))
100 4 = 100mm (4 port/1 solenoid))
150 6= 150mm (6 port/1 solenoid))

Module Type:
A = Vertical Hi-Speed SB (manifold air)
H = Horizontal UFD* (continuous)
V = Vertical UFD* (continuous)
K = Horizontal UFD SB (intermittent)
F = Vertical UFD SB (intermittent)
J = Vertical, Hi-Speed SB, (intermittent) Festo
M = Horizontal, Hi-Speed SB, (intermittent) Festo
P = Horizontal Hi-Speed SB (manifold air)

Number of Modules Installed:
1, 2, 3, 4, 5, 6 or
Z (no modules)

Filtration Options:
A = 100 mesh, basket
B = 150 mesh, basket
C = 150 mesh, spin-on
D = 200 mesh, spin-on

Number of Solenoids:
1, 2, 3, 4, 5 or 6
0 = Only for options J, M
E = Adds Balanced Solenoid Manifold (not available for J, M)

Control:
D = DynaControl / PLC
M = MCV
N = Upgrade, Nor (Nickel RTD)
L = Upgrade, Mel (J-type thermocouple)
P = Upgrade, Mel (Platinum RTD)

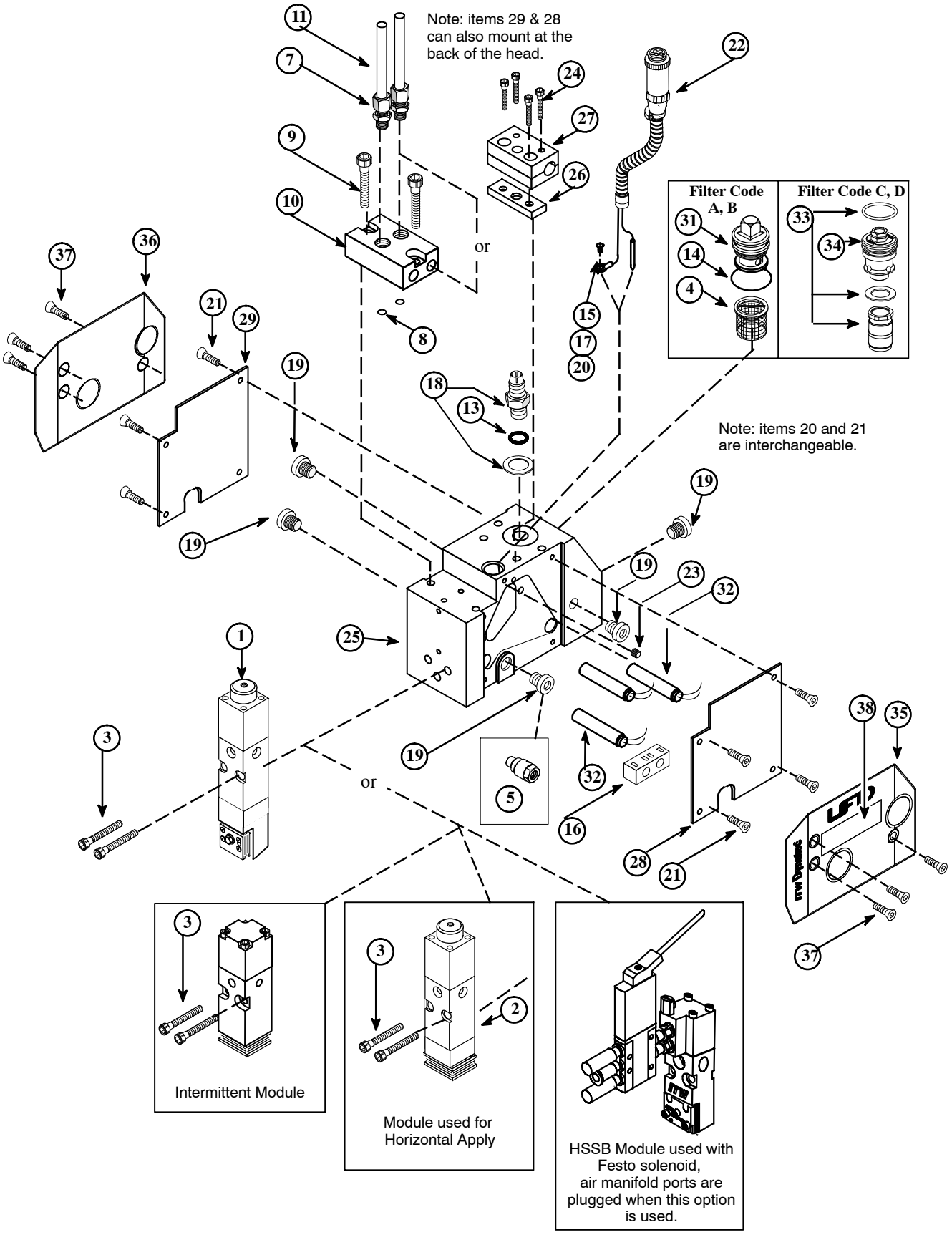
Voltage:
2 = 240 AC

Head Options:
S = Standard (No Options)
A = Adds Purge Valve

Notes: When specifying a head with no modules, (see "Z" above), the Module Type (H, V, etc.) must still be specified for the application.

Bill Of Materials for 1 Port UFD Vertical & Horizontal Apply Applicator Assemblies

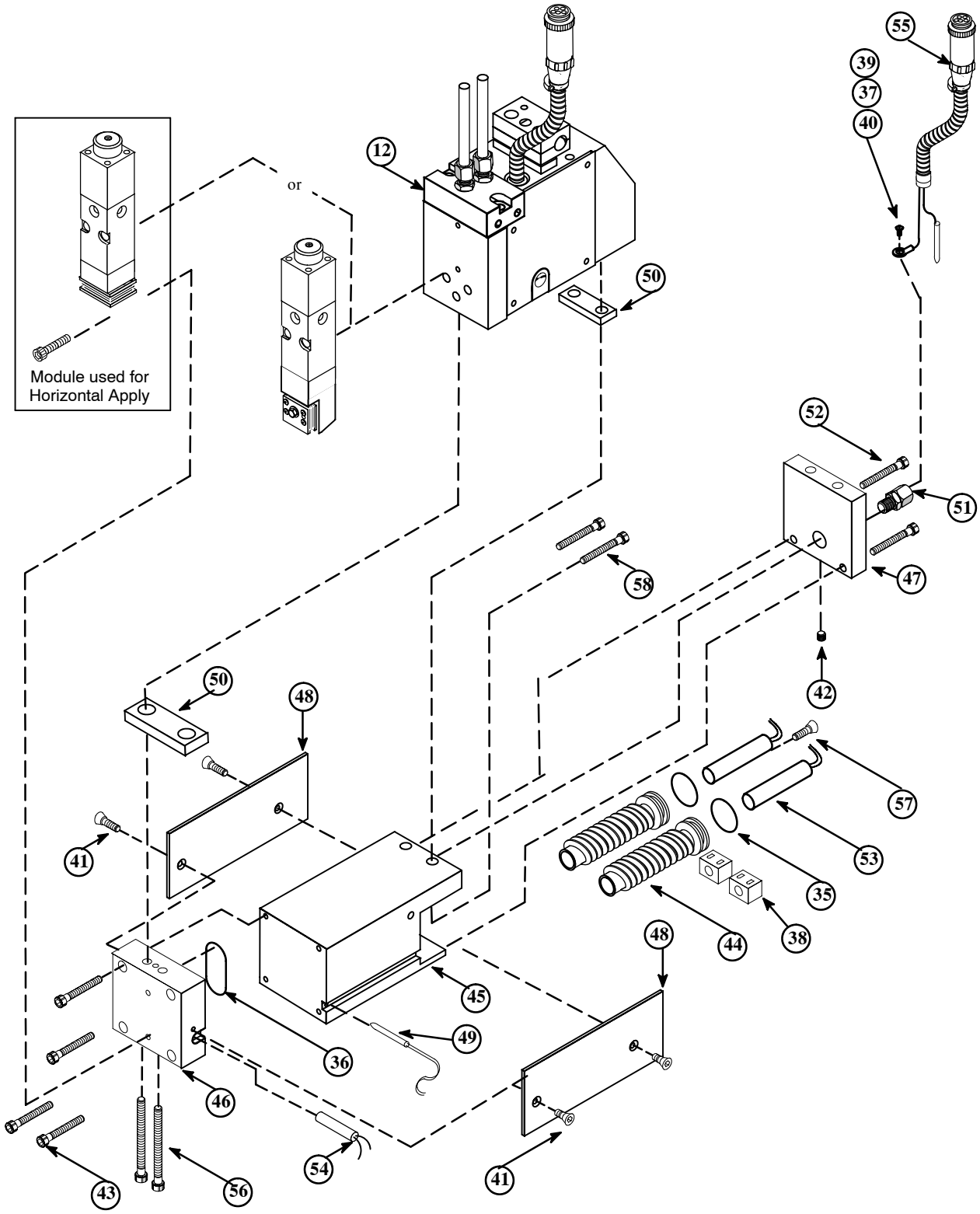
Item No.	Part Number	Description	Qty.
1	106224	Module, MR13, Vertical, Extended (UFD0501V1A1D2S)	1
2	104993	Module, MR13, Horizontal (UFD0501H1A1D2S)	1
	110840	Module, MR13, Horizontal/ Intermittent (Special)	1
	113346	Module, HSSB,Vertical (used with Festo Solenoid)	1
		(for more module options see page 6-1)	
3	107160	10-32 x 1.25 SHC Screw	2
4	106273	Filter Basket, 150 mesh	1
	101247	Filter Basket, 100 mesh	1
5	107820	Purge Valve Assembly, 1/4 BSPP (optional)	1
6	**110384**	**Solenoid Manifold Assembly**	**1**
7	N00093	Fitting, Compression	2
8	N00175	O-ring, -008	2
9	N07419	M5 x 20 SHC Screw	2
10	110383	Air Manifold	1
11	106333	Tube Stainless steel, 1/4 x .065w x 3.5	2
12	**109256**	**Service Block Assembly (DCL)**	**1**
	109257	**Service Block Assembly (NOR)**	**1**
	109258	**Service Block Assembly (MEL-J)**	**1**
	109259	**Service Block Assembly (MCV)**	**1**
	110144	**Service Block Assembly (MEL-PT)**	**1**
	109852	**Service Block Assembly (J & M)**	**1**
13	N00196	O-ring, #-111	1
14	N03812	O-ring, #-125	1
15	N07430	Terminal Ring	1
16	107881	Terminal Block, 2 Pos, Ceramic	2
17	078C088	Washer Int Tooth, Lock #4	1
18	101624	Fitting Straight, 6 JIC x 1/4 BSPP	1
19	101625	Fitting Plug, 1/4 BSPP, Soc	5
20	101627	M3-.5 x 6mm, Zinc Plated	1
21	106531	M3-.5 x 8mm FH, PHL, Screw	8
22	103467	Cable Assembly, BF240v, DCL, 9.0 (Built-in Sensor)	1
	106707	Cable Assembly, BF240v, MCV, 9.0 (Built-in Sensor)	1
	104528	Cable Assembly, BF240v, NOR, 9.0 (Built-in Sensor)	1
	107050	Cable Assembly, BF240v, MEL-J, 9.0 (Built-in Sensor)	1
	110143	Cable Assembly, BF240v, MEL-PT, 9.0 (Built-in Sensor)	1
	112098	Cable Assembly, SB, JM, w/Sol	1
23	103470	M3-.5 x 5mm, Flat Point SH Set Screw	1
24	104663	M6-1, 0 x 25mm SHC Screw	2
25	109157	Service Block	1
26	106292	Spacer Mounting Clamp	1
27	106293	Mounting Clamp, 13mm, MK2	1
28	109107	Side Cover, Service Block	1
29	110451	Side Cover, Service Block	1
30	112099	Conduit Assembly (next to cable assy., not shown, J & M)	1
31	106303	Filter Nut	1
32	106444	Heater, Cartridge, 150w, 240v, 10 x 40	3
33	116245	Filter Kit, M20 Spin-on (includes N03812 o-ring & 116243 washer)	1
	116594	Filter Kit, 200 mesh Spin-on (includes N03812 o-ring & 116243 washer)	1
34	116244	Filter Cap, M20 Spin-on Filter	1
35	117825	Cover, Left HS, Standard (used on all standard models)	1
36	117826	Cover, Right HS, Standard (used on all standard models)	1
37	117547	Screw, LOW, SHCS, M6x10, SST	6
38	117543	Data Tag	2


Note: items 29 & 28 can also mount at the back of the head.
or
Filter Code A, B
Filter Code C, D
Note: items 20 and 21 are interchangeable.
or
Intermittent Module
Module used for Horizontal Apply
HSSB Module used with Festo solenoid, air manifold ports are plugged when this option is used.

Component Illustration: 1 Port UFD Vertical Apply & 1 Port UFD Horizontal Apply Service Body and Solenoid Manifold Section

Bill Of Materials for 1 Port UFD Vertical & Horizontal Apply, Air Pre-Heater Section

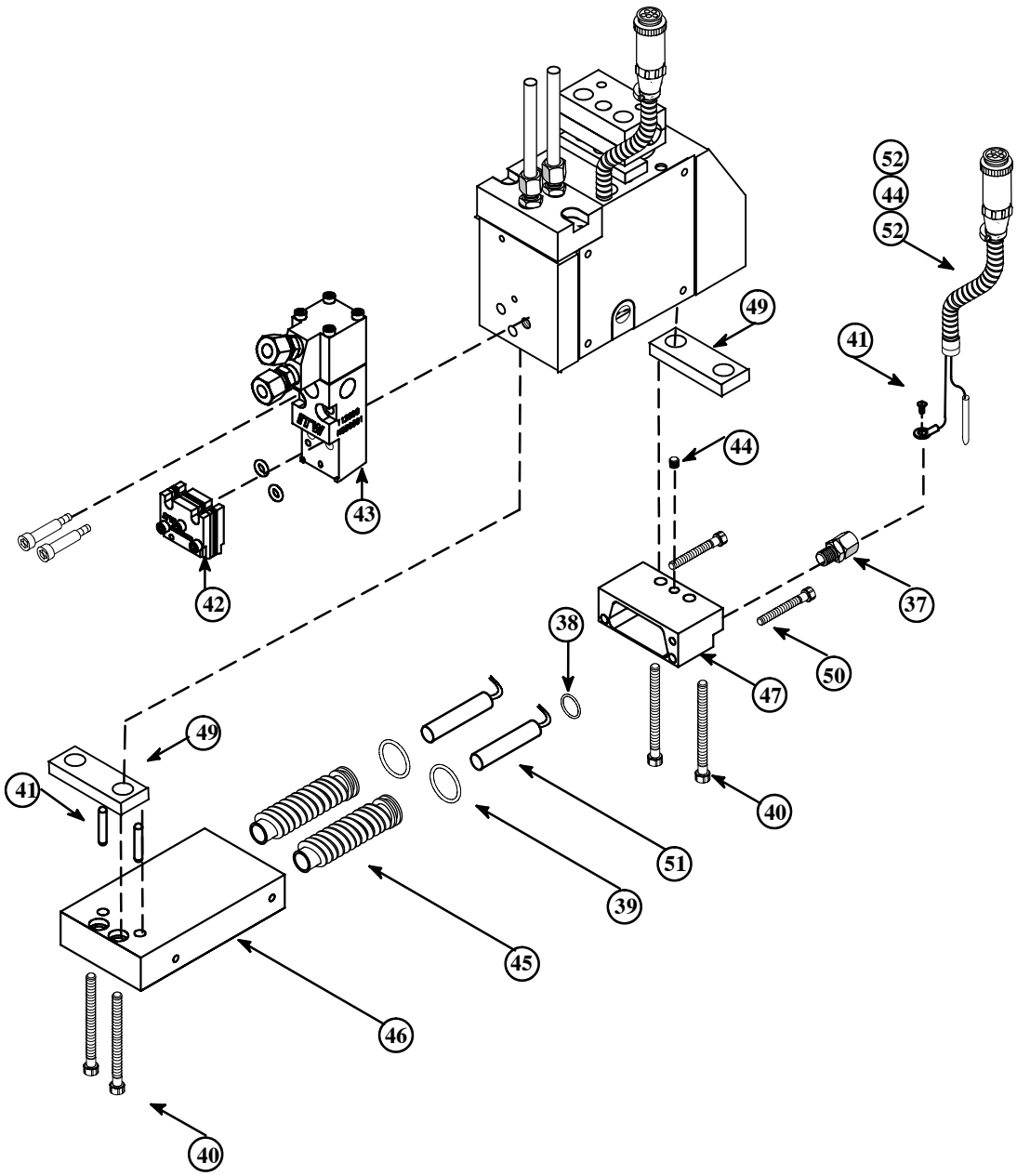
Item No.	Part Number	Description	Qty.
	109260	**Air Pre-heater Assembly (DCL)**	**1**
	109261	**Air Pre-heater Assembly (NOR)**	**1**
	109262	**Air Pre-heater Assembly (MEL-J)**	**1**
	109263	**Air Pre-heater Assembly (MCV)**	**1**
	110146	**Air Pre-heater Assembly (MEL-PT)**	**1**
35	N00183	O-ring, #-016	2
36	N00185	O-ring, #-018	1
37	N04268	Terminal Ring	1
38	N07541	Terminal Block, 1 Pos, Ceramic	2
39	106236	Washer Int Tooth, Lock #4	2
40	107389	M3-.5 x 6mm Philips Head Cap Screw, Zinc Plated	1
41	106531	M3-.5 x 8mm FH, PHL, Screw	4
42	103470	M3-.5 x 5mm Flat Point Socket Head Set Screw	1
43	100908	M4 x 25mm SHC Screw, Black Oxide	4
44	106294	Spiral Tube	2
45	109109	Preheater Manifold	1
46	109158	Distribution Manifold	1
47	109108	Wire Cover	1
48	109111	Cover	2
49		Temperature Sensor (shown for ref. part of cable assy.)	1
50	106306	Spacer	2
51	N00093	Fitting, Compression	1
52	106328	M4-.7 x 16mm SHC Screw, Zinc Plated	2
53	106329	Heater, Cartridge, 200w, 240v, 10 x 60mm	2
54	106448	Heater, Cartridge, 200w, 240v, 8 x 40mm	1
55	109253	Cable Assembly, DCL	1
	109286	Cable Assembly, MCV	1
	109287	Cable Assembly, NOR	1
	109288	Cable Assembly, MEL-J	1
	110145	Cable Assembly, MEL-PT	1
56	106332	M5-.8 x 55mm SHC Screw	2
57	107161	M4 x 8mm BHSC Screw	1
58	109252	M5 x 25mm SHC Screw	2



Component Illustration: 1 Port UFD Vertical Apply & 1 Port UFD Horizontal Apply
Air Pre-Heater Section

Bill Of Materials for 1 or 2 Port Slim Design Air Pre-heater Section , Module Optim Codes C,G,J,M Only (this slim design is available in four port PN 112793 and six port PN 112794 Assemblies)

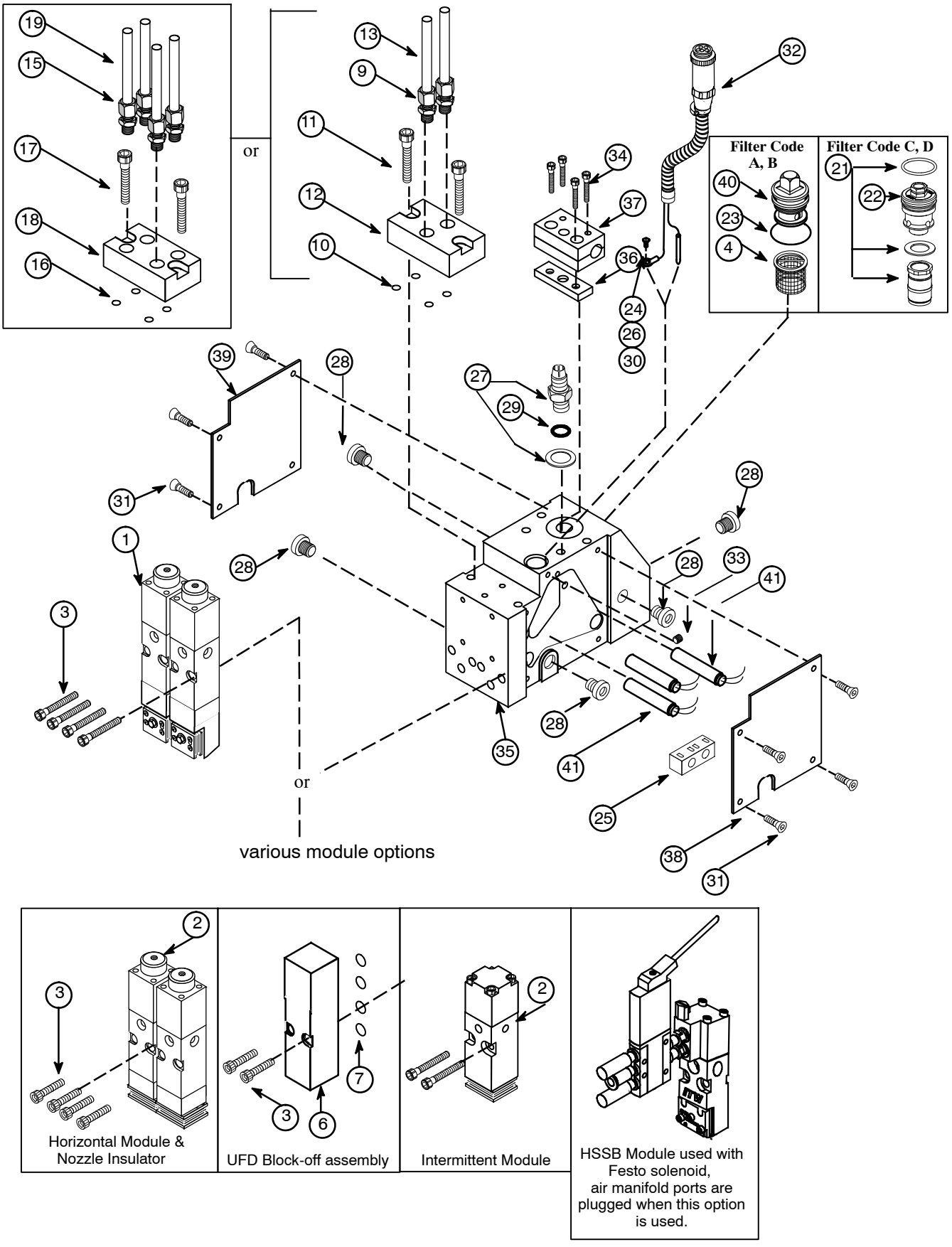
Item No.	Part Number	Description	Qty.
36	**112791**	**Air Pre-heater Assembly Slim Design (DCL)**	**1**
37	N00093	Fitting, Compression	1
38	N00174	O-ring, -007	1
39	N00181	O-ring, #-014	2
40	109252	M5 x25 SHC Screw	4
41	106726	Pin Dowel, M5 x16mm	2
42		Nozzel (see order for part number)	1
43	112690	Module, HHSB Vert., Direct Air (shown for ref. See your order)	1-2
44	078C088	Washer #4 int. Tooth	2
45	112714	Spiral Tube, Slim Design	2
46	112784	Preheater Manifold (1 port)	1
	112785	Preheater Manifold (2 port)	1
47	112788	Wire Cover 1-2 port (Part Of Cable Assy.)	1
48		Temperature Sensor (shown for ref. part of cable assy.)	1
49	106306	Spacer	2
50	101692	M4-.7 x 35mm SHC Screw, Zinc Plated	2
51	106329	Heater, Cart, 200w, 240v, 10 x 60mm (Part OfCable Assy.)	2
52	112806	Cable Assembly, DCL, Slim Line, 1 - 2 port	1
52	101627	M3 x 6 Slot Head Screw	2



Component Illustration: 1-2 Port UFD Slim Design Air Preheater Assembly

Bill Of Materials for 2 Port UFD Vertical or Horizontal Apply, 1 or 2 Program, Applicator Assemblies

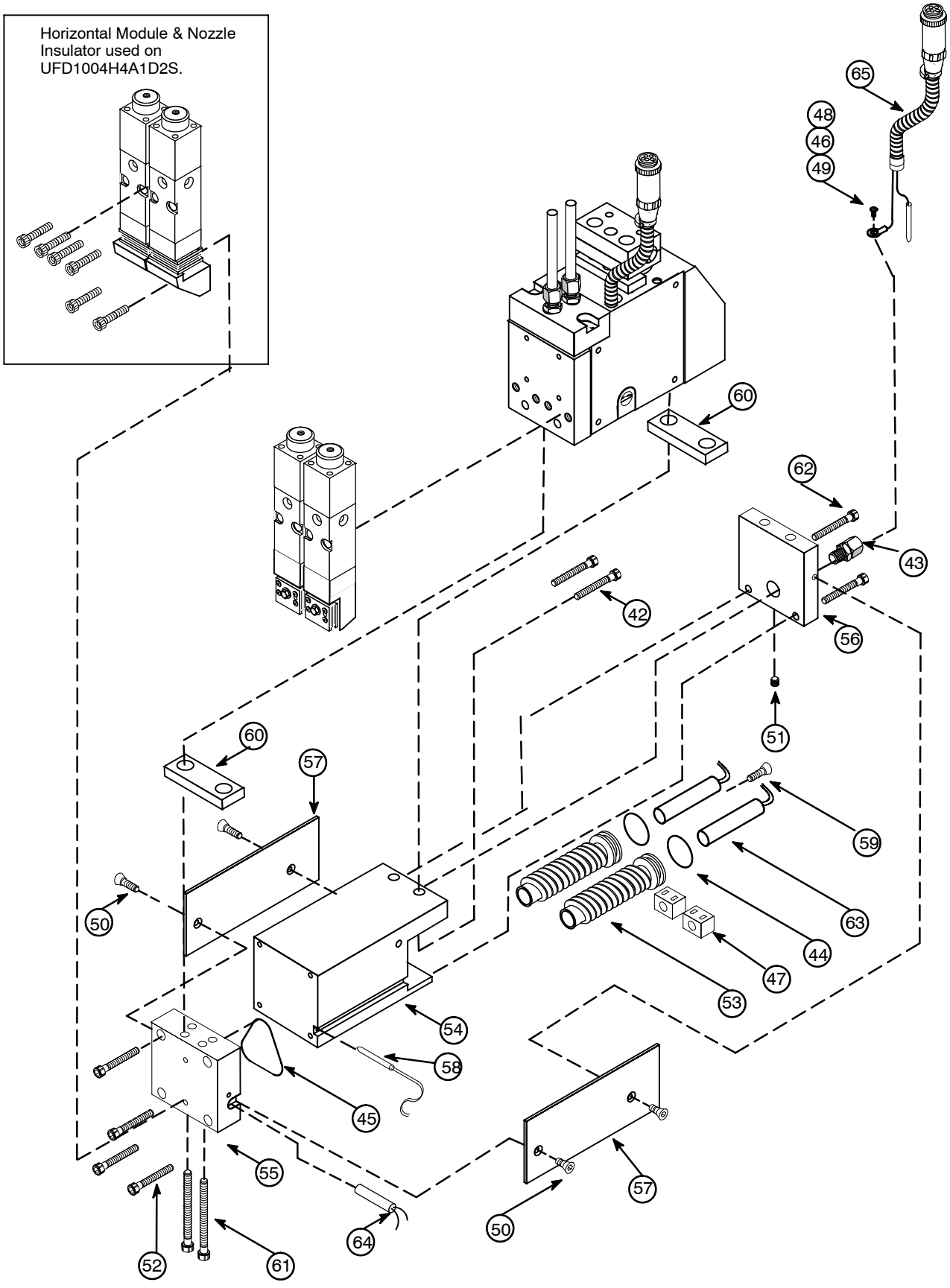
Item No.	Part Number	Description	Qty.
1	106224	Module, MR13, Vertical, Extended	2
2	104993	Module, MR13, Horizontal	2
	110840	Module, MR13, Horizontal/ Intermittent (Special)	1
	113346	Module, HSSB,Vertical (used with Festo Solenoid)	1
		(see page 6-1 for more module options)	
3	107160	10-32 x 1.25 SHC Screw	4
4	106273	Filter Basket, 150 mesh	1
	101247	Filter Basket, 100 mesh	1
5	**106472**	**Module Block-off Assembly (option)**	1
6	106367	Blank Plate	2
7	N00178	O-ring, #-011	8
8	**106474**	**Solenoid Manifold Assembly, 1 Program**	**1**
9	N00093	Fitting, Compression	2
10	N00175	O-ring, -008	4
11	N07419	M5 x 20 SHC Screw	2
12	106305	Air Manifold 2 Port,1 Program	1
13	106333	Tube Stainless Steel, 1/4 x .065w x 3.5	2
14	**106475**	**Solenoid Manifold Assembly, 2 Program**	1
15	N00093	Fitting, Compression	4
16	N00175	O-ring, -008	4
17	N07419	M5 x 20 SHC Screw	2
18	106307	Air Manifold, 2 Port, 2 Program	1
19	106333	Tube Stainless Steel, 1/4 x .065w x 3.5	4
20	**109254**	**Service Block Assembly (DCL)**	**1**
	109264	**Service Block Assembly (NOR)**	**1**
	109265	**Service Block Assembly (MEL)**	**1**
	109266	**Service Block Assembly (MCV)**	**1**
21	116245	Filter Kit, M20 Spin-on (includes N03812 o-ring & 116243 washer)	1
	116594	Filter Kit, 200 mesh Spin-on (includes N03812 o-ring & 116243 washer)	1
22	116244	Filter Cap, M20 Spin-on Filter	1
23	N03812	O-ring, #-125	1
24	N07430	Terminal Ring	1
25	107881	Terminal Block, 2 Pos, Ceramic	2
26	078C088	Washer Int Tooth, Lock #4	1
27	101624	Fitting Straight, 6 JIC x 1/4 BSPP	1
28	101625	Fitting Plug, 1/4 BSPP, Soc	5
29	N00196	O-ring, #-111	1
30	101627	M3-.5 x 6mm, Zinc Plated	1
31	106531	M3-.5 x 8mm FH, PHL, Screw	8
32	103467	Cable Assembly, BF240v, DCL, 9.0 (Built-in Sensor)	1
	106707	Cable Assembly, BF240v, MCV, 9.0 (Built-in Sensor)	1
	104528	Cable Assembly, BF240v, NOR, 9.0 (Built-in Sensor)	1
	107050	Cable Assembly, BF240v, MEL, 9.0 (Built-in Sensor)	1
33	103470	M3-.5 x 5mm, Flat Point SH Set Screw	1
34	104663	M6-1, 0 x 25mm SHC Screw	2
35	109103	Service Block	1
36	106292	Spacer Mounting Clamp	1
37	106293	Mounting Clamp, 13mm, MK2	1
38	109107	Side Cover, Service Block	1
39	110451	Side Cover, Service Block	1
40	106303	Filter Nut	1
41	106444	Heater, Cartridge, 150w, 240v, 10 x 40	3
	107936	**Balanced Manifold Assembly (option, not shown)**	**1**



Component Illustration: 2 Port UFD Vertical or Horizontal Apply with 1 or 2 Program, Applicator Assembly

Bill Of Materials for 2 Port UFD Vertical or Horizontal Apply, 1 or 2 Program, Air Pre-heater Section

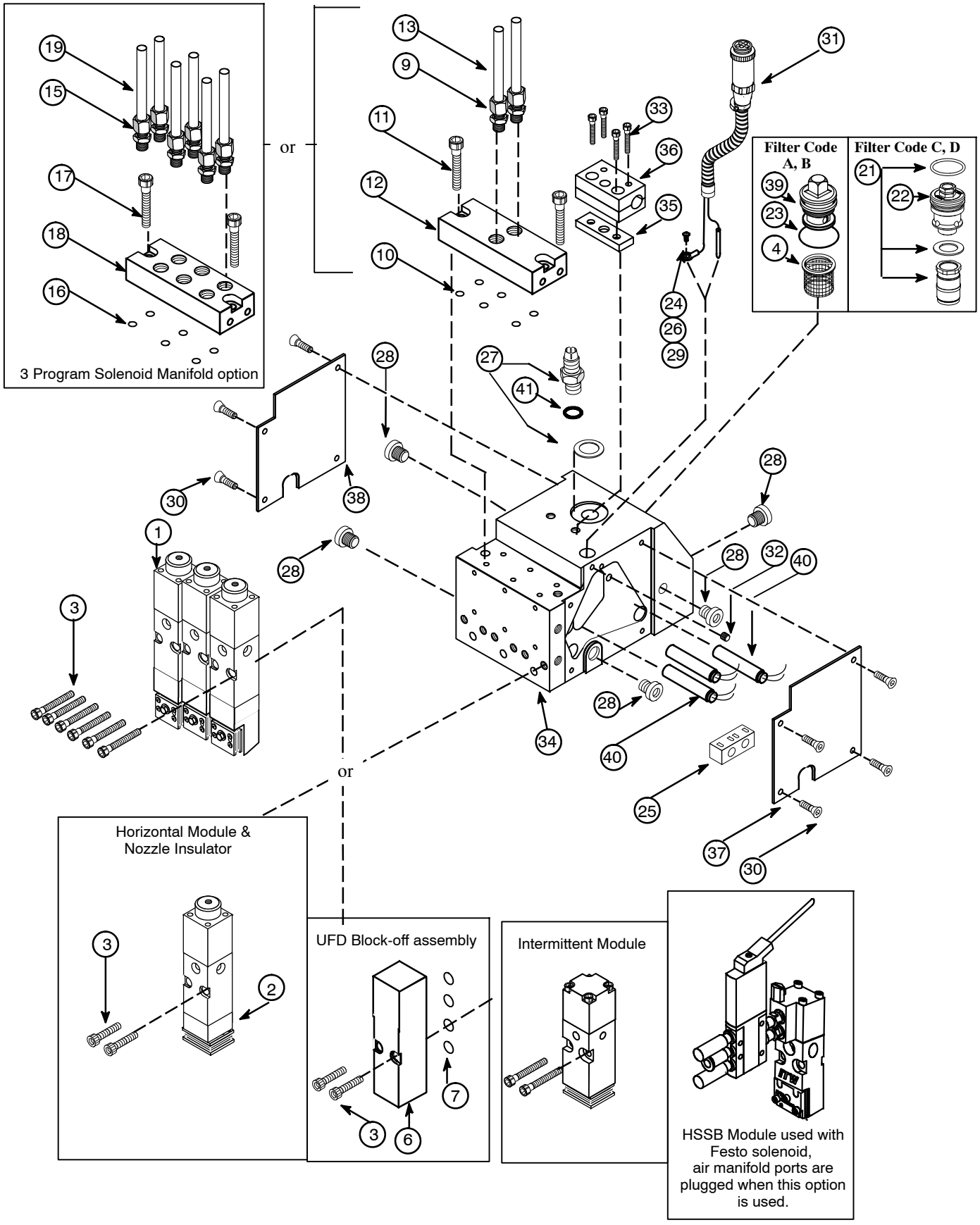
Item No.	Part Number	Description	Qty.
	109255	**Air Pre-heater Assembly (DCL)**	**1**
	109267	**Air Pre-heater Assembly (NOR)**	**1**
	109268	**Air Pre-heater Assembly (MEL)**	**1**
	109269	**Air Pre-heater Assembly (MCV)**	**1**
42	109252	SHCS, M5 x 25mm	2
43	N00093	Fitting, Compression	1
44	N00183	O-ring, #-016	2
45	069X270	O-ring, #-025	1
46	N04268	Terminal Ring	1
47	N07541	Terminal Block, 1 Pos, Ceramic	2
48	106236	Washer Int Tooth, Lock #4	1
49	107389	M3-.5 x 6mm Philips Head Cap Screw, Zinc Plated	1
50	106531	M3-.5 x 8mmFH, PHL, Screw	4
51	103470	M3-.5 x 5mm Flat Point Socket Head Set Screw	1
52	100908	M4 x 25mm SHC Screw, Black Oxide	4
53	106294	Spiral Tube	2
54	109109	Preheater Manifold	1
55	109110	Distribution Manifold	1
56	109108	Wire Cover	1
57	109111	Cover, Side	1
58		Temperature Sensor (shown for ref. part of cable assy.)	1
59	107161	BHSCS, M4 x 8mm	1
60	106306	Spacer	2
61	106332	M5-.8 x 55mm SHC Screw	2
62	106328	M4-.7 x 16mm SHC Screw, Zinc Plated	2
63	106329	Heater, Cartridge, 200w, 240v, 10 x 60mm	2
64	106448	Heater, Cartridge, 200w, 240v, 8 x 40mm	1
65	109253	Cable Assembly, DCL	1
	109286	Cable Assembly, MCV	1
	109287	Cable Assembly, NOR	1
	109288	Cable Assembly, MEL	1



Component Illustration: 2 Port UFD Vertical or Horizontal Apply with 1 or 2 Program, Air Pre-Heater Section.

Bill Of Materials for: 3 Port UFD Vertical or Horizontal Apply, 1, 2 or 3 Program, Applicator Assemblies

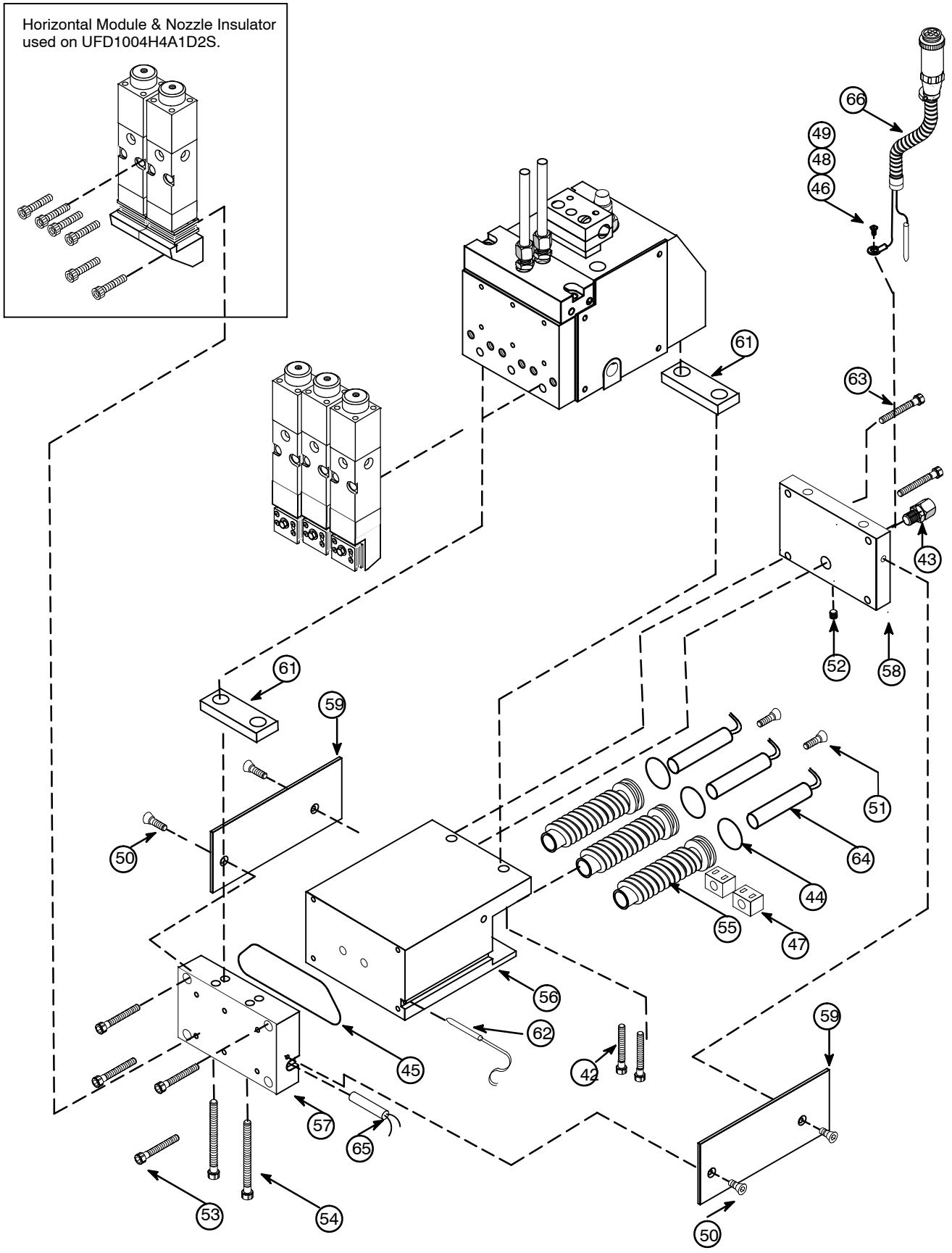
Item No.	Part Number	Description	Qty.
1	106224	Module, MR13, Vertical, Extended	4
2	104993	Module, MR13, Horizontal	4
	110840	Module, MR13, Horizontal/ Intermittent (Special)	1
	113346	Module, HSSB,Vertical (used with Festo Solenoid)	1
		(for more module options see page 6-1)	
3	107160	10-32 x 1.25 SHC Screw	6
4	106273	Filter Basket, 150 mesh	1
	101247	Filter Basket, 100 mesh	1
5	**106472**	**Module Block-off Assembly**	1-3
6	106367	Blank Plate	1
7	N00178	O-ring, #-011	4
8	**106667**	**Solenoid Manifold Assembly, 1 Program**	**1**
	114777	**Solenoid Manifold Assembly, 2 Program**	**1**
9	N00093	Fitting, Compression	2
10	N00175	O-ring, -008	6
11	N07419	M5 x 20 SHC Screw	2
12	106546	Air Manifold 3 Port,1 Program	1
13	106333	Tube Stainless Steel, 1/4 x .065w x 3.5	2
14	**106668**	**Solenoid Manifold Assembly, 3 Program**	**1**
	107935	**Solenoid Manifold Assembly, 3 Program, Balanced**	**1**
15	N00093	Fitting, Compression	6
16	N00175	O-ring, -008	6
17	N07419	M5 x 20 SHC Screw	2
18	106547	Air Manifold,3 Port, 3 Program	1
	107932	Air Manifold,3 Port, 3 Program, Balanced	1
19	106333	Tube Stainless Steel, 1/4 x .065w x 3.5	6
20	**109334**	**Service Block Assembly (DCL)**	**1**
	109335	**Service Block Assembly (MCV)**	**1**
	109336	**Service Block Assembly (NOR)**	**1**
	109337	**Service Block Assembly (MEL)**	**1**
21	116245	Filter Kit, M20 Spin-on (includes N03812 o-ring & 116243 washer)	1
	116594	Filter Kit, 200 mesh Spin-on (includes N03812 o-ring & 116243 washer)	1
22	116244	Filter Cap, M20 Spin-on Filter	1
23	N03812	O-ring, #-125	1
24	N07430	Terminal Ring	1
25	107881	Terminal Block, 2 Pos, Ceramic	2
26	078C088	Washer Int Tooth, Lock #4	1
27	101624	Fitting Straight, 6 JIC x 1/4 BSPP	1
28	101625	Fitting Plug, 1/4 BSPP, Soc	5
29	101627	M3-.5 x 6mm, Zinc Plated	1
30	106531	M3-.5 x 8mm FH, PHL, Screw	8
31	103467	Cable Assembly, BF240v, DCL, 9.0 (Built-in Sensor)	1
	106707	Cable Assembly, BF240v, MCV, 9.0 (Built-in Sensor)	1
	104528	Cable Assembly, BF240v, NOR, 9.0 (Built-in Sensor)	1
	107050	Cable Assembly, BF240v, MEL, 9.0 (Built-in Sensor)	1
32	103470	M3-.5 x 5mm, Flat Point SH Set Screw	1
33	104663	M6-1, 0 x 25mm SHC Screw	2
34	109159	Service Block	1
35	106292	Spacer Mounting Clamp	1
36	106293	Mounting Clamp, 13mm, MK2	1
37	109107	Side Cover, Service Block	1
38	110451	Side Cover, Service Block	1
39	106303	Filter Nut	1
40	106548	Heater, Cartridge, 175w, 240v, 10 x 65	3
41	N00196	O-ring, #-111	1


3 Program Solenoid Manifold option
or
Filter Code A, B
Filter Code C, D
or
Horizontal Module & Nozzle Insulator
UFD Block-off assembly
Intermittent Module
HSSB Module used with Festo solenoid, air manifold ports are plugged when this option is used.

Component Illustration: 3 Port UFD Vertical or Horizontal Apply with 1 - 3 Program, Applicator Assembly.

Bill Of Materials for 3 Port UFD Vertical or Horizontal Apply, 1 or 3 Program, Air Pre-Heater Section

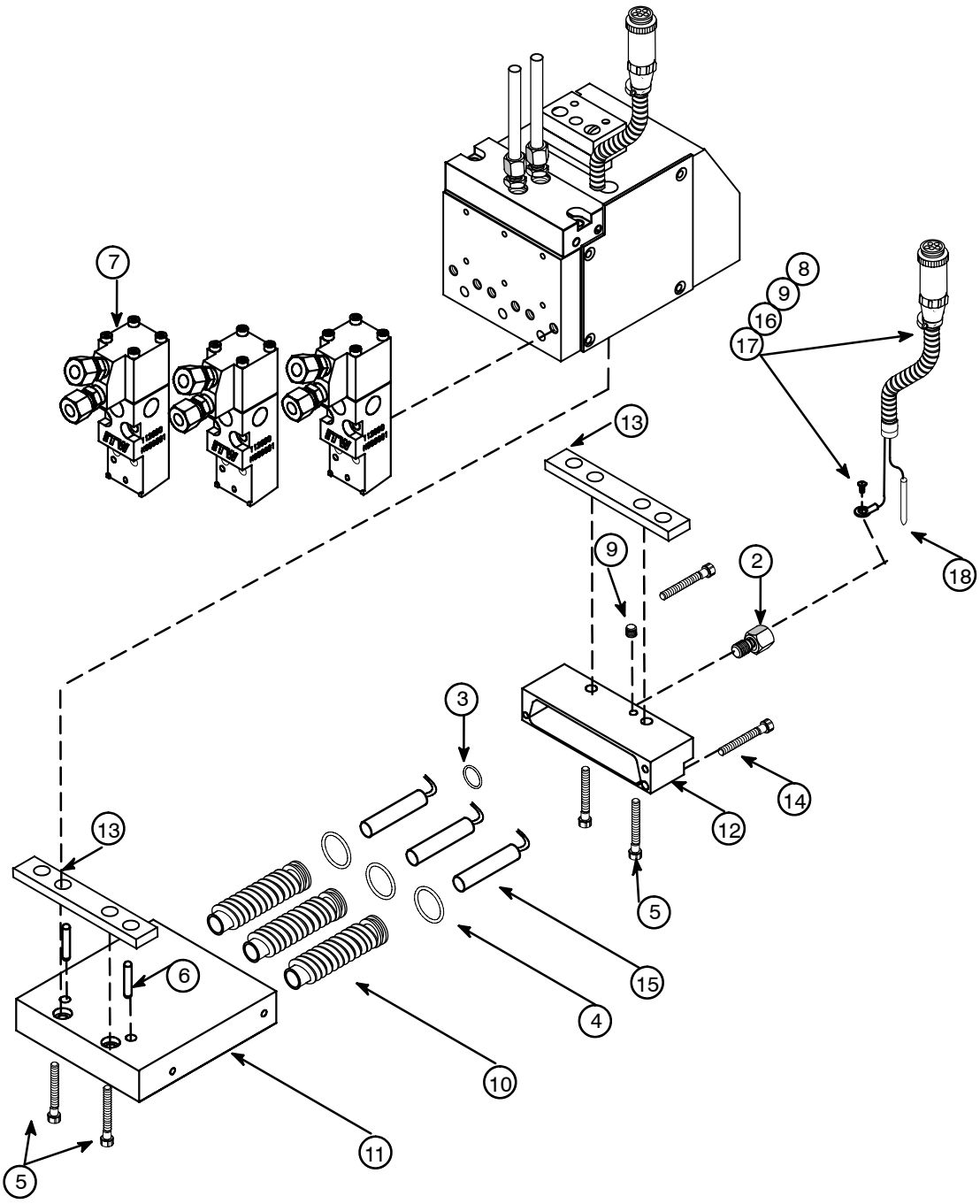
Item No.	Part Number	Description	Qty.
	109338	**Air Pre-heater Assembly (DCL)**	**1**
	109339	**Air Pre-heater Assembly (MCV)**	**1**
	109340	**Air Pre-heater Assembly (NOR)**	**1**
	109341	**Air Pre-heater Assembly (MEL)**	**1**
42	109252	SHCS, M5 x 25mm	2
43	N00093	Fitting, Compression	1
44	N00183	O-ring, #-016	3
45	N00192	O-ring, #-032	1
46	N04268	Terminal Ring	1
47	N07541	Terminal Block, 1 Pos, Ceramic	2
48	106236	Washer Int Tooth, Lock #4	1
49	107389	M3-.5 x 6mm Philips Head Cap Screw, Zinc Plated	1
50	106531	M3-.5 x 8mmFH, PHL, Screw	4
51	107161	BHSCS, M4 x 8mm	2
52	103470	M3-.5 x 5mm Flat Point Socket Head Set Screw	1
53	100908	M4 x 25mm SHC Screw	3
54	106332	M5-.8 x 55mm SHC Screw	2
55	106294	Spiral Tube	3
56	109162	Preheater Manifold	1
57	109165	Distribution Manifold	1
58	109168	Wire Cover, Rear	1
59	109111	Cover, Side	1
60			
61	106550	Spacer	2
62		Temperature Sensor (shown for reference, part of cable assy.)	1
63	106328	M4-.7 x 16mm SHC Screw, Zinc Plated	2
64	106329	Heater, Cartridge, 200w, 240v, 10 x 60mm	3
65	106549	Heater, Cartridge, 400w, 240v, 8 x 65mm	1
66	109253	Cable Assembly, DCL	1
	109286	Cable Assembly, MCV	1
	109287	Cable Assembly, NOR	1
	109288	Cable Assembly, MEL	1



Component Illustration: 3 Port UFD Vertical or Horizontal Apply with 1 or 3 Program, Air Pre-Heater Section

Bill Of Materials for 3 Port Slim Design Air Pre-heater Section (DCL PN 113841 shown)

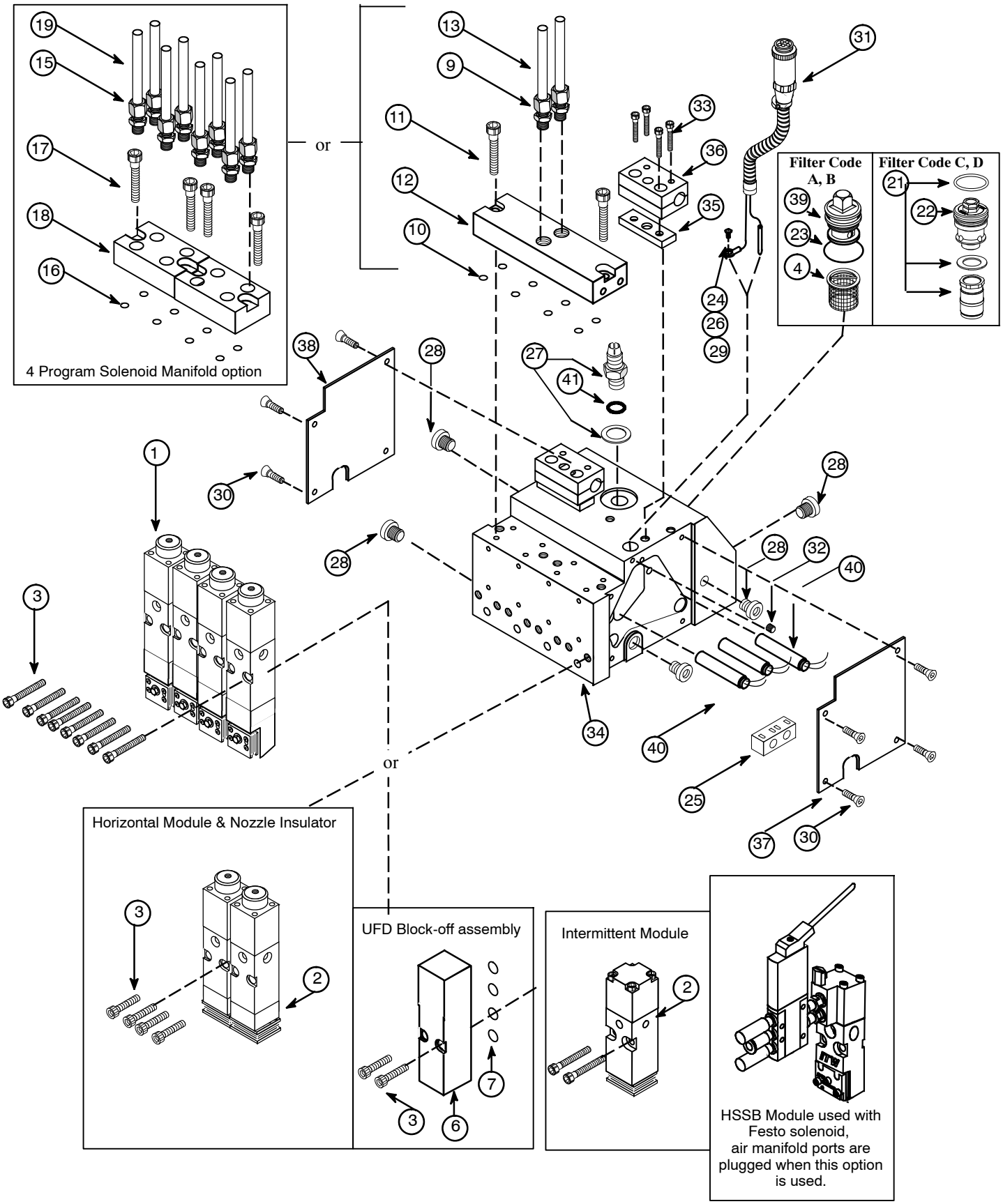
Item No.	Part Number	Description	Qty.
1	**113841**	**Air Pre-heater Assembly Slim Design (DCL)**	**1**
2	N00093	Fitting, Compression	1
3	N00174	O-ring, -007	1
4	N00181	O-ring, #-014	3
5	109252	M5 x25 SHC Screw	4
6	106726	Pin Dowel, M5 x16mm	2
7	112690	Module, HHSB Vert., Direct Air (shown for reference, see your order)	3
8	078C088	Washer #4 int. Tooth	2
9		Set Screw M3x0.5x6	1
10	112714	Spiral Tube, Slim Design	3
11	113839	Heater Body	1
12	113840	Wire Cover, 3-port	1
13	106550	Spacer	2
14	101692	M4-.7 x 35mm SHC Screw, Zinc Plated	2
15	106329	Heater, Cartridge, 200w, 240v, 10 x 60mm	3
16	101610	Cable Assembly, DCL	1
17	101627	M3 x 6 Slot Head Screw	2
18		Temperature Sensor (shown for reference, part of cable assy.)	1



Component Illustration: 3 Port UFD Slim Design Air Preheater Assembly

Bill Of Materials for: 4 Port UFD Vertical or Horizontal Apply, 1 or 4 Program, Applicator Assemblies

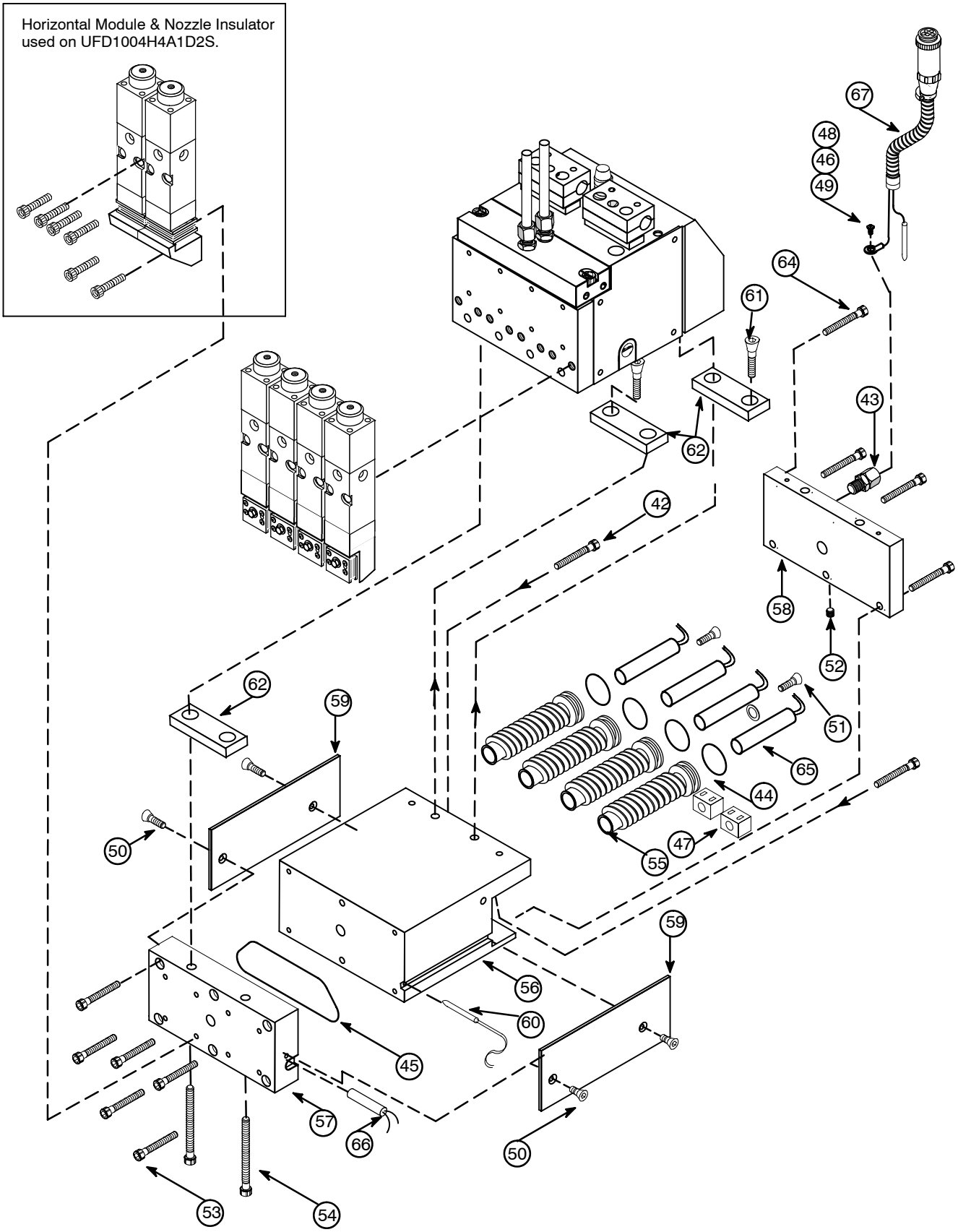
Item No.	Part Number	Description	Qty.
1	106224	Module, MR13, Vertical, Extended	4
2	104993	Module, MR13, Horizontal	4
	110840	Module, MR13, Horizontal/ Intermittent (Special)	1
	113346	Module, HSSB,Vertical (used with Festo Solenoid)	1
		(for more module options see page 6-1)	
3	107160	10-32 x 1.25 SHC Screw	8
4	106273	Filter Basket, 150 mesh	1
	101247	Filter Basket, 100 mesh	1
5	**106472**	**Module Block-off Assembly**	1-3
6	106367	Blank Plate	1
7	N00178	O-ring, #-011	4
8	**106476**	**Solenoid Manifold Assembly, 1 Program**	**1**
9	N00093	Fitting, Compression	2
10	N00175	O-ring, -008	8
11	N07419	M5 x 20 SHC Screw	2
12	106297	Air Manifold 4 Port,1 Program	1
13	106333	Tube Stainless Steel, 1/4 x .065w x 3.5	2
14	**106475**	**Solenoid Manifold Assembly, 2 Program**	**2**
15	N00093	Fitting, Compression	4
16	N00175	O-ring, -008	4
17	N07419	M5 x 20 SHC Screw	2
18	106307	Air Manifold, 2 Port, 2 Program	1
19	106333	Tube Stainless Steel, 1/4 x .065w x 3.5	4
20	**109270**	**Service Block Assembly (DCL)**	**1**
	109271	**Service Block Assembly (MCV)**	**1**
	109272	**Service Block Assembly (NOR)**	**1**
	109273	**Service Block Assembly (MEL)**	**1**
21	116245	Filter Kit, M20 Spin-on (includes N03812 o-ring & 116243 washer)	1
	116594	Filter Kit, 200 mesh Spin-on (includes N03812 o-ring & 116243 washer)	1
22	116244	Filter Cap, M20 Spin-on Filter	1
23	N03812	O-ring, #-125	1
24	N07430	Terminal Ring	1
25	107881	Terminal Block, 1 Pos, Ceramic	2
26	078C088	Washer Int Tooth, Lock #4	1
27	101624	Fitting Straight, 6 JIC x 1/4 BSPP	1
28	101625	Fitting Plug, 1/4 BSPP, Soc	5
29	101627	M3-.5 x 6mm, Zinc Plated	1
30	106531	M3-.5 x 8mm FH, PHL, Screw	8
31	103467	Cable Assembly, BF240v, DCL, 9.0 (Built-in Sensor)	1
	106707	Cable Assembly, BF240v, MCV, 9.0 (Built-in Sensor)	1
	104528	Cable Assembly, BF240v, NOR, 9.0 (Built-in Sensor)	1
	107050	Cable Assembly, BF240v, MEL, 9.0 (Built-in Sensor)	1
32	103470	M3-.5 x 5mm, Flat Point SH Set Screw	1
33	104663	M6-1, 0 x 25mm SHC Screw	4
34	109160	Service Block	1
35	106292	Spacer Mounting Clamp	2
36	106293	Mounting Clamp, 13mm, MK2	2
37	109107	Side Cover, Service Block	1
38	110451	Side Cover, Service Block	1
39	106303	Filter Nut	1
40	106325	Heater, Cartridge, 200w, 240v, 10 x 90	3
41	N00196	O-ring, #-111	1
	107934	Balanced Manifold Asembly (not shown)	


4 Program Solenoid Manifold option
or
Filter Code A, B
Filter Code C, D
or
Horizontal Module & Nozzle Insulator
UFD Block-off assembly
Intermittent Module
HSSB Module used with Festo solenoid, air manifold ports are plugged when this option is used.

Component Illustration: 4 Port UFD Vertical or Horizontal Apply with 1 or 4 Program, Applicator Assembly.

Bill Of Materials for 4 Port UFD Vertical or Horizontal Apply, 1 or 4 Program, Air Pre-Heater Section

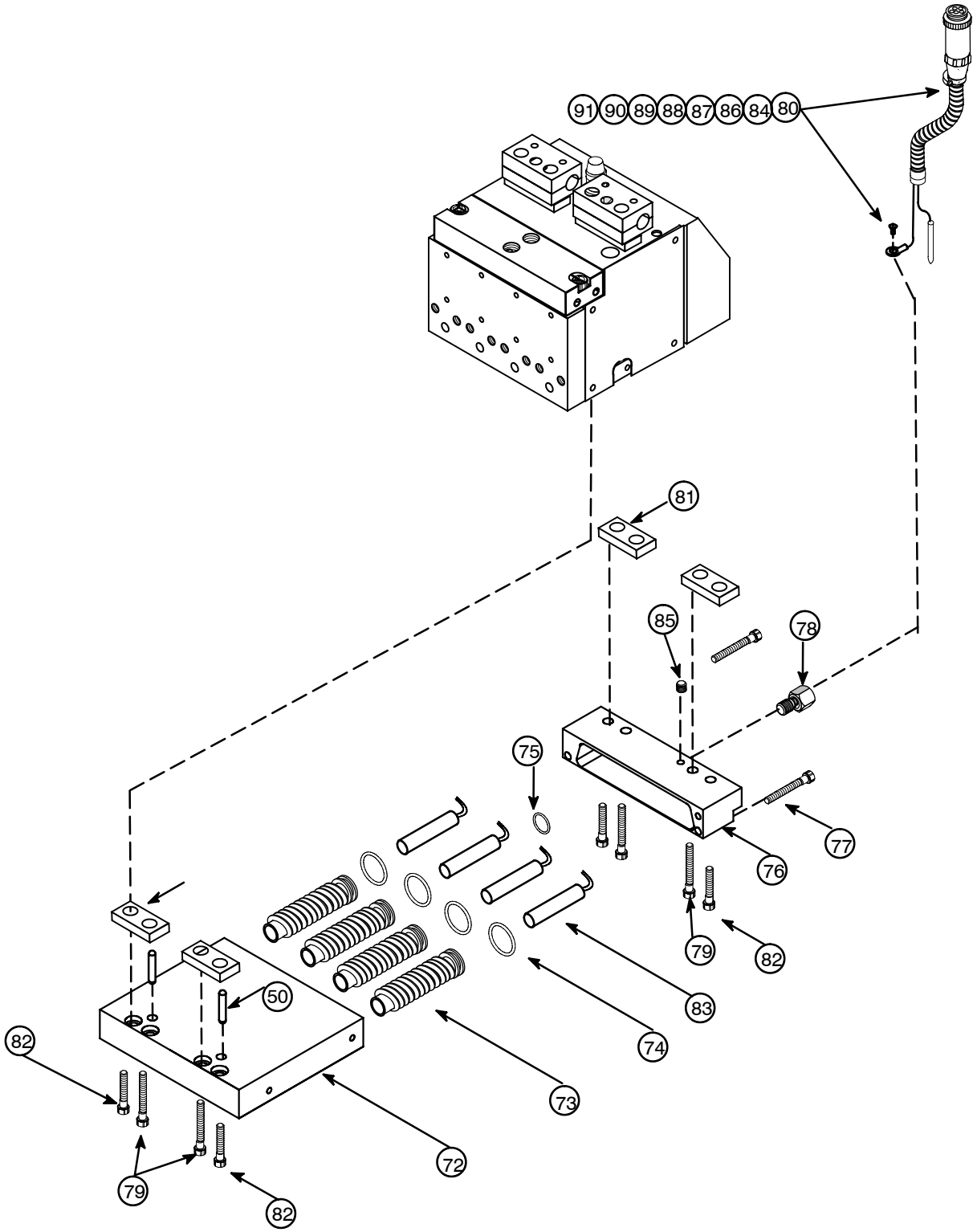
Item No.	Part Number	Description	Qty.
	109274	**Air Pre-heater Assembly (DCL)**	**1**
	109275	**Air Pre-heater Assembly (MCV)**	**1**
	109276	**Air Pre-heater Assembly (NOR)**	**1**
	109277	**Air Pre-heater Assembly (MEL)**	**1**
42	109252	SHCS, M5 x 25mm	2
43	N00093	Fitting, Compression	1
44	N00183	O-ring, #-016	4
45	N04126	O-ring, #-037	1
46	N04268	Terminal Ring	1
47	N07541	Terminal Block, 1 Pos, Ceramic	2
48	106236	Washer Int Tooth, Lock #4	1
49	107389	M3-.5 x 6mm Philips Head Cap Screw, Zinc Plated	1
50	106531	M3-.5 x 8mmFH, PHL, Screw	4
51	107161	BHSCS, M4 x 8	2
52	103470	M3-.5 x 5mm Flat Point Socket Head Set Screw	1
53	100908	M4 x 25mm SHC Screw, Black Oxide	6
54	106332	M5-.8 x 55mm SHC Screw	2
55	106294	Spiral Tube	4
56	109163	Preheater Manifold	1
57	109166	Distribution Manifold	1
58	109169	Wire Cover Rear	1
59	109111	Cover, Side	1
60		Temperature Sensor (shown for ref. part of cable assy.)	1
61	106470	FHSCS, M4 x 8mm	4
62	106306	Spacer	4
63			
64	106328	M4-.7 x 16mm SHC Screw, Zinc Plated	3
65	106329	Heater, Cartridge, 200w, 240v, 10 x 60mm	4
66	106330	Heater, Cartridge, 400w, 240v, 8 x 90mm	1
67	109253	Cable Assembly, DCL	1
	109286	Cable Assembly, MCV	1
	109287	Cable Assembly, NOR	1
	109288	Cable Assembly, MEL	1



Component Illustration: 4 Port UFD Vertical or Horizontal Apply with 1 or 4 Program, Air Pre-Heater Section.

Bill Of Materials for 4 Port UFD Slim Design, Air Pre-Heater Section 112793, Module Optim Codes C,G,J,M Only

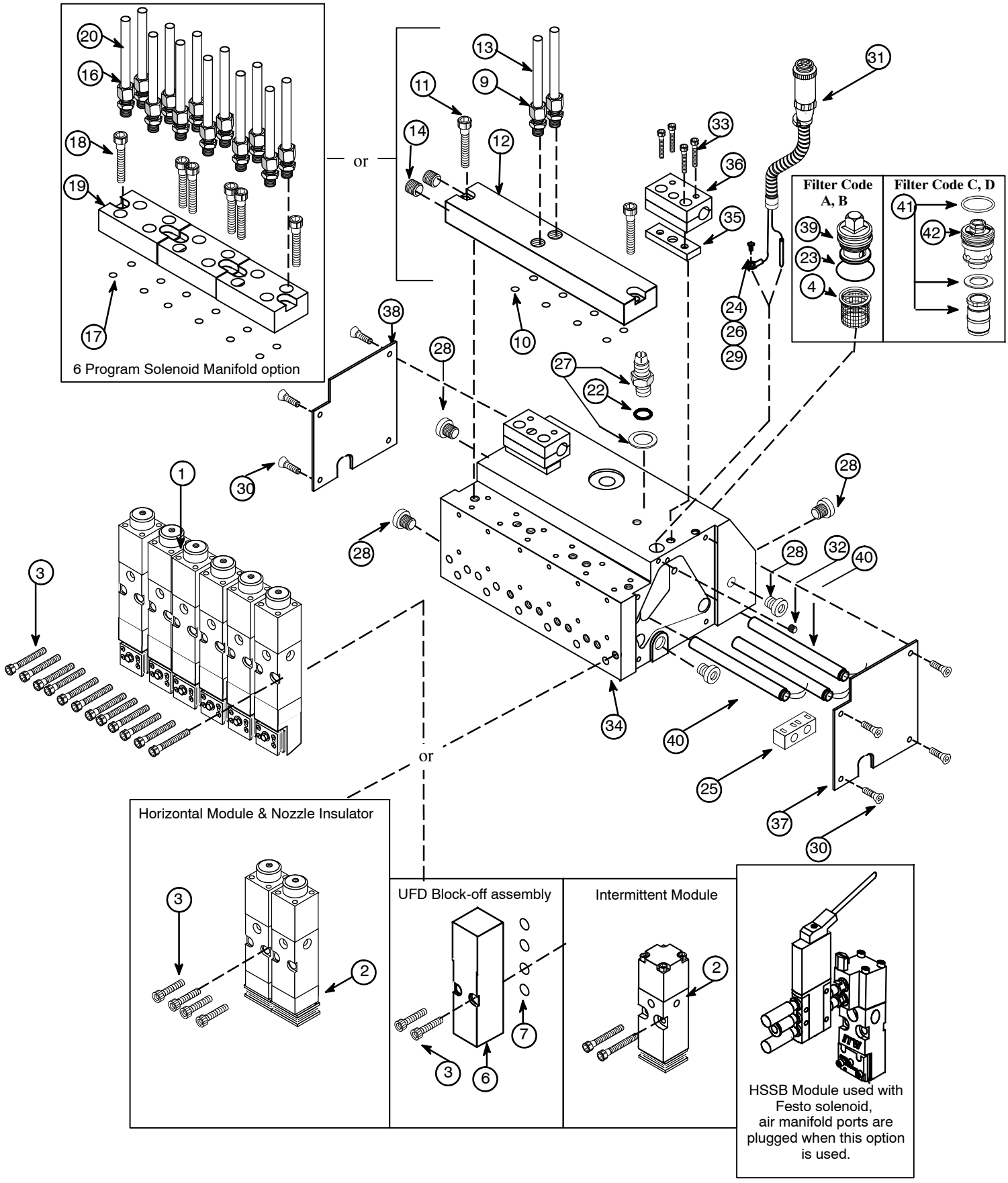
Item No.	Part Number	Description	Qty.
72	112786	Heater Body	1
73	112714	Spiral Tube	4
74	N00181	O-ring, -014	4
75	N00174	O-ring,-007	1
76	112789	Wire Cover	1
77	101692	M4 x 35 SHC Screw	3
78	N00093	Fitting, 1/4 Tube x 1/8 NPT	1
79	109252	M5 x 25mm SHC Screw	
80	106726	Dowel Pin M5 x 16mm	2
81	106306	Spacer	4
82	106470	M4 x 8mm FHSC Screw	4
83	106329	Heater Cartridge, 10mm, 20w	4
84	101610	Cable Assembly, AH, DCL	1
85	112716	M5 x 6mm SH Set Screw, Cup Point	1
86	N01756	Term, PRLL, 16-14 GA	2
87	048J271	Heat Shrink	0.1
88	078C088	Washer, #4 Internal Tooth	2
89	101627	M3-.5 x 6mm Slot Head Screw	2
90	N07430	Terminal Ring	1
91	048G016	Terminal Ring	1



Component Illustration: 4 Port UFD , Slim Design, Air Pre-Heater Section -112793

Bill Of Materials for: 6 Port UFD Vertical or Horizontal Apply, 1 or 6 Program, Applicator Assemblies

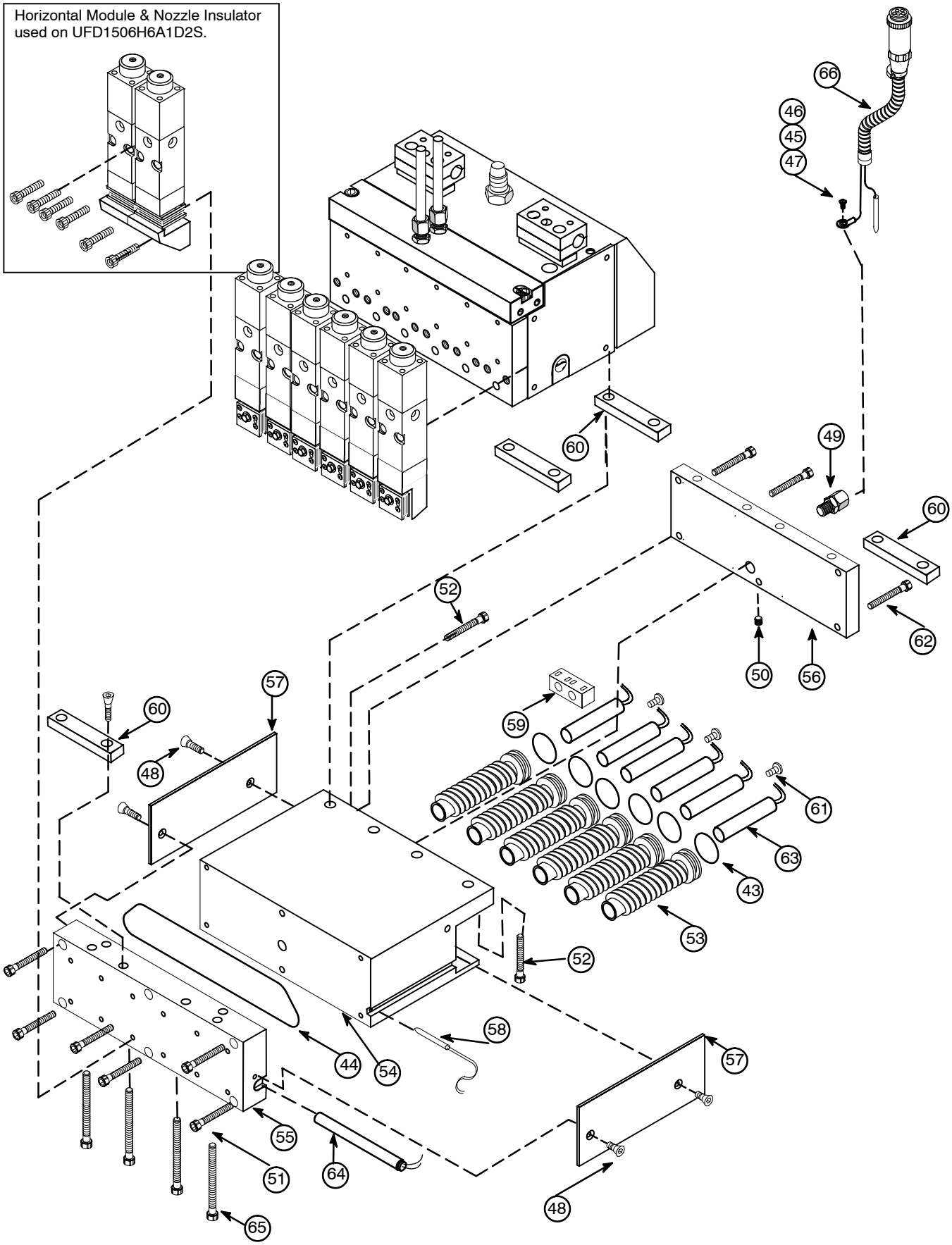
Item No.	Part Number	Description	Qty.
1	106224	Module, MR13, Vertical, Extended	6
2	104993	Module, MR13, Horizontal	6
	110840	Module, MR13, Horizontal/ Intermittent (Special)	1
	113346	Module, HSSB,Vertical (used with Festo Solenoid)	1
3	107160	10-32 x 1.25 SHC Screw	12
4	106273	Filter Basket, 150 mesh	1
	101247	Filter Basket, 100 mesh	1
5	**106472**	**Module Block-off Assembly**	1-5
6	106367	Blank Plate	1
7	N00178	O-ring, #-011	4
8	**106879**	**Solenoid Manifold Assembly, 1 Program**	**1**
9	N00093	Fitting, Compression	2
10	N00175	O-ring, -008	12
11	N07419	M5 x 20 SHC Screw	2
12	110345	Air Manifold 6 Port,1 Program	1
13	106333	Tube Stainless Steel, 1/4 x .065w x 3.5	2
14	N00753	1/8 NPT Level Seal Plug	2
15	**106475**	**Solenoid Manifold Assembly, 2 Program**	**3**
16	N00093	Fitting, Compression	4
17	N00175	O-ring, -008	4
18	N07419	M5 x 20 SHC Screw	2
19	106307	Air Manifold, 2 Port, 2 Program	1
20	106333	Tube Stainless Steel, 1/4 x .065w x 3.5	4
21	**109278**	**Service Block Assembly (DCL)**	**1**
	109279	**Service Block Assembly (MCV)**	**1**
	109280	**Service Block Assembly (NOR)**	**1**
	109281	**Service Block Assembly (MEL)**	**1**
22	N00196	O-ring, #-111	1
23	N03812	O-ring, #-125	1
24	N07430	Terminal Ring	1
25	107881	Terminal Block, 2 Pos, Ceramic	2
26	078C088	Washer Int Tooth, Lock #4	1
27	101624	Fitting Straight, 6 JIC x 1/4 BSPP	1
28	101625	Fitting Plug, 1/4 BSPP, Soc	5
29	101627	M3-.5 x 6mm, Zinc Plated	1
30	106531	M3-.5 x 8mm FH, PHL, Screw	8
31	103467	Cable Assembly, BF240v, DCL, 9.0 (Built-in Sensor)	1
	106707	Cable Assembly, BF240v, MCV, 9.0 (Built-in Sensor)	1
	104528	Cable Assembly, BF240v, NOR, 9.0 (Built-in Sensor)	1
	107050	Cable Assembly, BF240v, MEL, 9.0 (Built-in Sensor)	1
32	103470	M3-.5 x 5mm, Flat Point SH Set Screw	1
33	104663	M6-1, 0 x 25mm SHC Screw	4
34	109161	Service Block	1
35	106292	Spacer Mounting Clamp	2
36	106293	Mounting Clamp, 13mm, MK2	2
37	109107	Side Cover, Service Block	1
38	110451	Side Cover, Service Block	1
39	106303	Filter Nut	1
40	106715	Heater, Cartridge, 300w, 240v, 10 x 140	3
41	116245	Filter Kit, M20 Spin-on (includes N03812 o-ring & 116243 washer)	1
	116594	Filter Kit, 200 mesh Spin-on (includes N03812 o-ring & 116243 washer)	1
42	116244	Filter Cap, M20 Spin-on Filter	1


6 Program Solenoid Manifold option
or
Filter Code A, B
Filter Code C, D
or
Horizontal Module & Nozzle Insulator
UFD Block-off assembly
Intermittent Module
HSSB Module used with Festo solenoid, air manifold ports are plugged when this option is used.

Component Illustration: 6 Port UFD Vertical or Horizontal Apply with 1 or 6 Program, Applicator Assembly.

Bill Of Materials for 6 Port UFD Vertical or Horizontal Apply, 1 or 6 Program, Air Pre-Heater Section

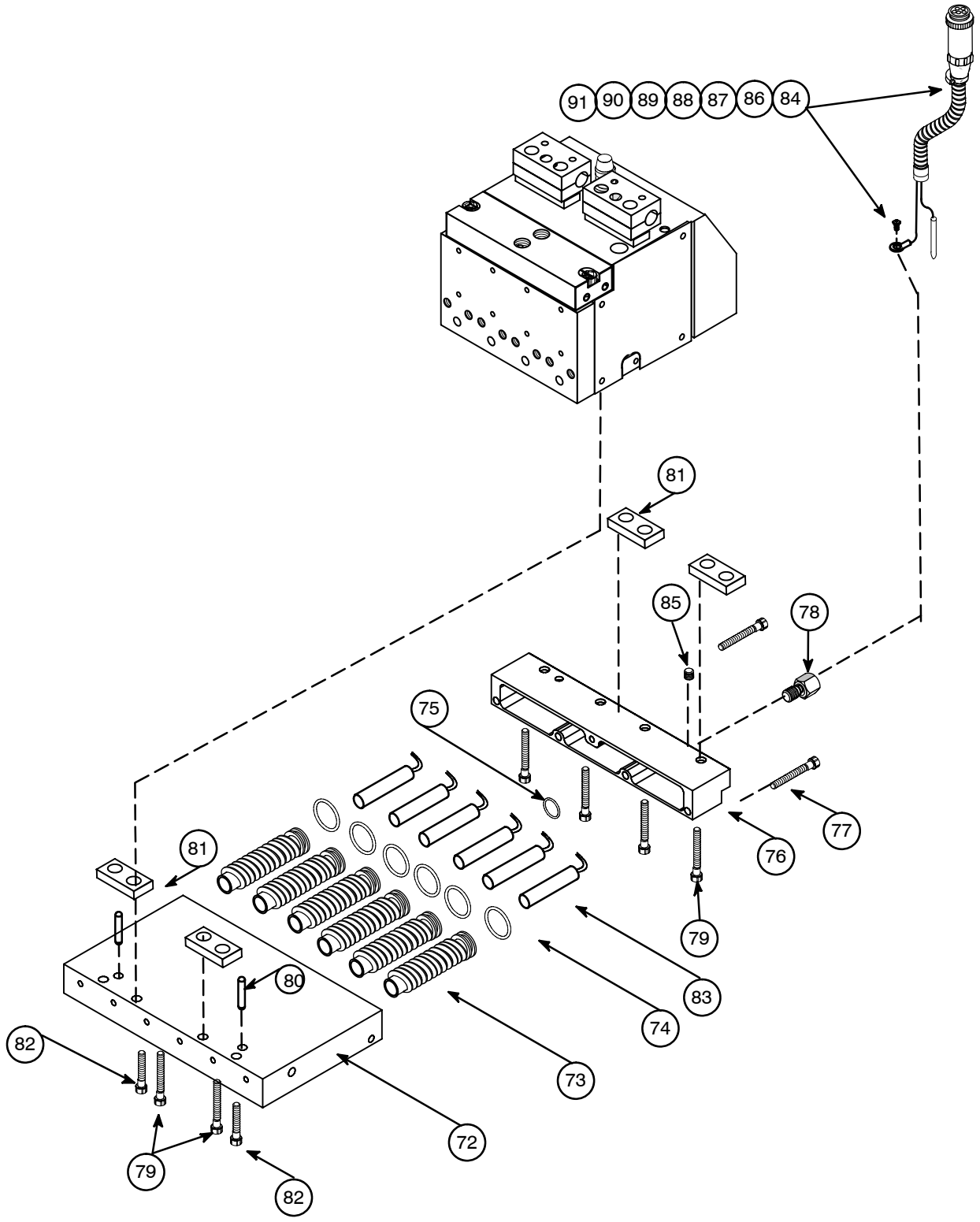
Item No.	Part Number	Description	Qty.
	109282	**Air Pre-heater Assembly (DCL)**	**1**
	109283	**Air Pre-heater Assembly (MCV)**	**1**
	109284	**Air Pre-heater Assembly (NOR)**	**1**
	109285	**Air Pre-heater Assembly (MEL)**	**1**
43	N00183	O-ring, #-016	6
44	106800	O-ring, #-044	1
45	N04268	Terminal Ring	1
46	106236	Washer Int Tooth, Lock #4	1
47	107389	M3-.5 x 6mm Philips Head Cap Screw, Zinc Plated	1
48	106531	M3-.5 x 8mmFH, PHL, Screw	4
49	N00093	Fitting, Compression	1
50	103470	M3-.5 x 5mm Flat Point Socket Head Set Screw	1
51	100908	M4 x 25mm SHC Screw, Black Oxide	6
52	109252	SHCS, M5 x 25mm	4
53	106294	Spiral Tube	6
54	109164	Preheater Manifold	1
55	109167	Distribution Manifold	1
56	109170	Back Plate	1
57	109111	Cover	2
58		Temperature Sensor (shown for reference, part of cable assy.)	1
59	107881	Terminal Block, 2 POS, Ceramic	2
60	106550	Spacer	4
61	107161	BHCS, M4 x 8mm	3
62	106328	M4-.7 x 16mm SHC Screw, Zinc Plated	3
63	106717	Heater, Cartridge, 100w, 240v, 10 x 60mm	6
64	106716	Heater, Cartridge, 600w, 240v, 8 x 140mm	1
65	106332	M5-.8 x 55mm SHC Screw	4
66	109253	Cable Assembly, DCL	1
	109286	Cable Assembly, MCV	1
	109287	Cable Assembly, NOR	1
	109288	Cable Assembly, MEL	1



Component Illustration: 6 Port UFD Vertical or Horizontal Apply with 1 or 6 Program, Air Pre-Heater Section

Bill Of Materials for 6 Port UFD Slim Design, Air Pre-Heater Section 112794
Module Option Codes C, G, J, M Only

Item No.	Part Number	Description	Qty.
72	112787	Heater Body	1
73	112714	Spiral Tube	6
74	N00181	O-ring, -014	6
75	N00174	O-ring,-007	1
76	112790	Wire Cover	1
77	101692	M4 x 35 SHC Screw	4
78	N00093	Fitting, 1/4 Tube x 1/8 NPT	1
79	109252	M5 x 25mm SHC Screw	8
80	106726	Dowel Pin M5 x 16mm	2
81	106306	Spacer	4
82	106470	M4 x 8mm FHSC Screw	4
83	106329	Heater Cartridge, 10mm, 200w	6
84	101610	Cable Assembly, AH, DCL (see order for your option)	1
85	112716	M5 x 6mm SH Set Screw, Cup Point	1
86	N01756	Term, PRLL, 16-14 GA	2
87	048J271	Heat Shrink	0.1
88	078C088	Washer, #4 Internal Tooth	2
89	101627	M3-.5 x 6mm Slot Head Screw	2
90	N07430	Terminal Ring	1
91	048G016	Terminal Ring	1

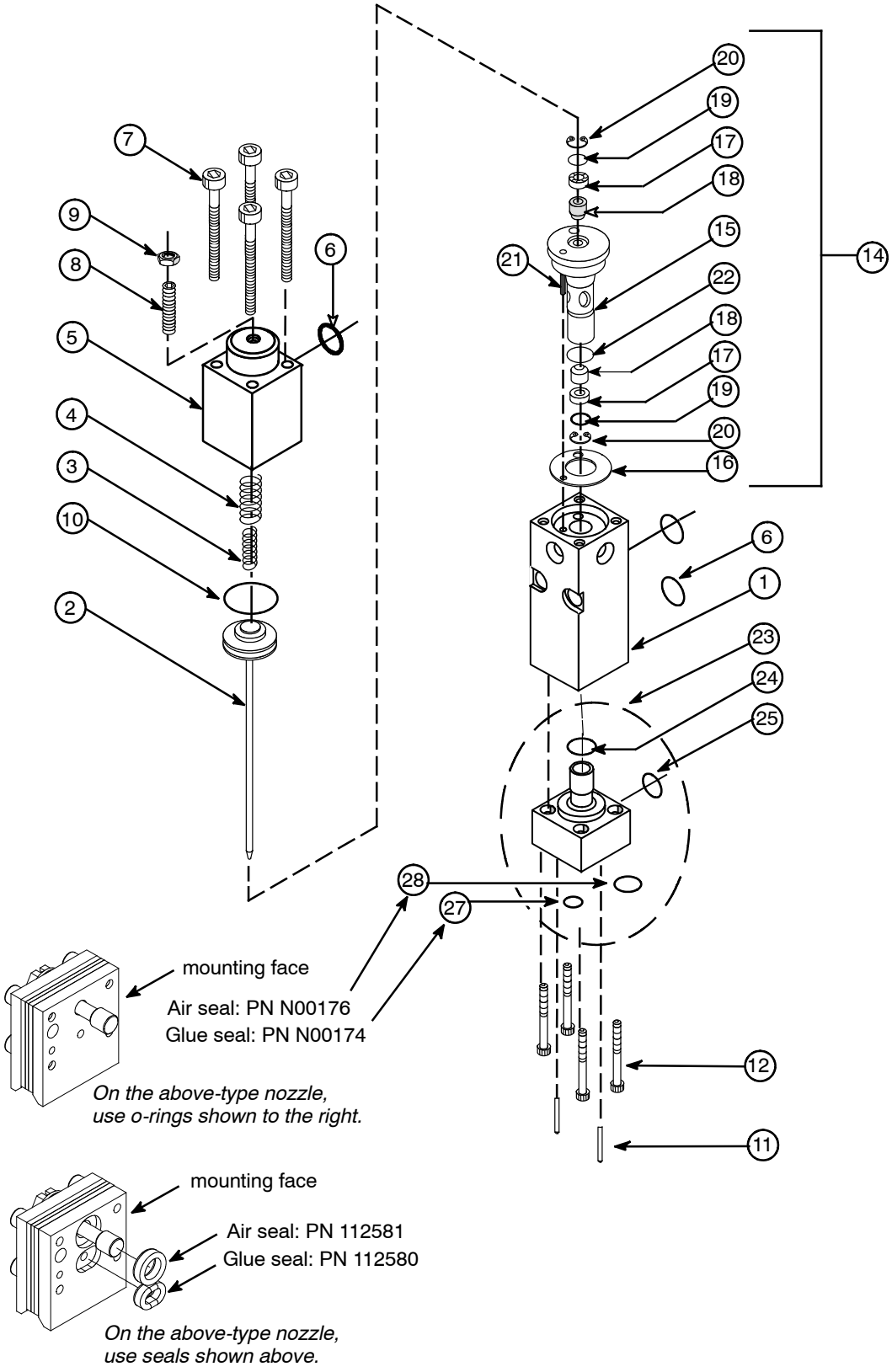


Component Illustration: 6 Port UFD , Slim Design, Air Pre-Heater Section-112794

Bill Of Material for PN 104993 UFD Spray Module Assembly, Horizontal

Item No.	Part Number	Description	Qty.
1	110791	Body Module	1
2	057C084	Stem Assembly (used on PN 104993 module)	1
2b	107178	Ball Stem Assembly (used on PN 107078 module)	1
3	057E409	Compression Spring, Inner	1
4	057E410	Compression Spring, Outer	1
5	057F139	Air Cylinder	1
6	N00178	O-Ring, #011	3
7	078A373	6-32 x 1 1/4 SHC Screw	4
8	078A384	10-32 x 3/4 SHS Screw	1
9	078D078	10-32 Sealing Hex Nut	1
10	N00198	O-Ring, #113	1
11	078G028	1/16 Dia. x 3/8 Long Roll Pin	2
12	N00794	6-32 x 3/4 SHC Screw	4
13	not used		
14	**084B1361**	**Seal Cartridge Assembly**	1
15	057E429	Seal Cartridge	1
16	057I260	Seal Cartridge Gasket	1
17	069X197	Stem Seal	2
18	069X198	Seal Backup	2
19	078C085	Washer, .25 x .16 x .04	2
20	078F034	Retaining Ring	2
21	078G028	Roll Pin	1
22	N00176	O-Ring, #009	1
23	**104989**	**Spray Nozzle Adapter Assembly***	**1**
24	N05044	O-Ring, #109	1
25	N00178	O-Ring, #011	1
26	not used		
27	N00174	O-ring, #007	2
28	N00176	O-ring, #009	2

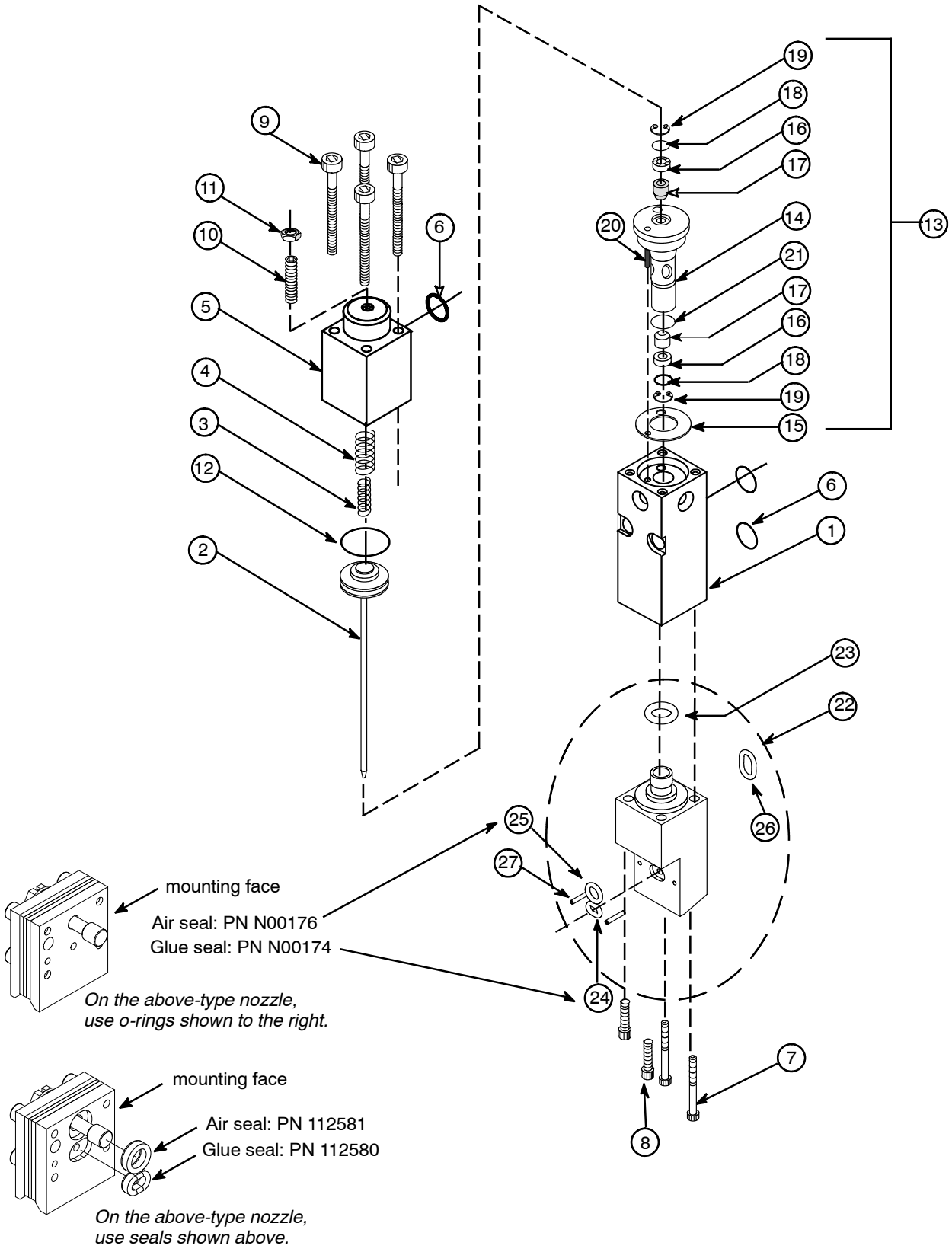
***Important:** *P/N 104989 must be ordered as an assembly.*



Component Illustration: PN 104993 UFD Spray Module Assembly, Horizontal.

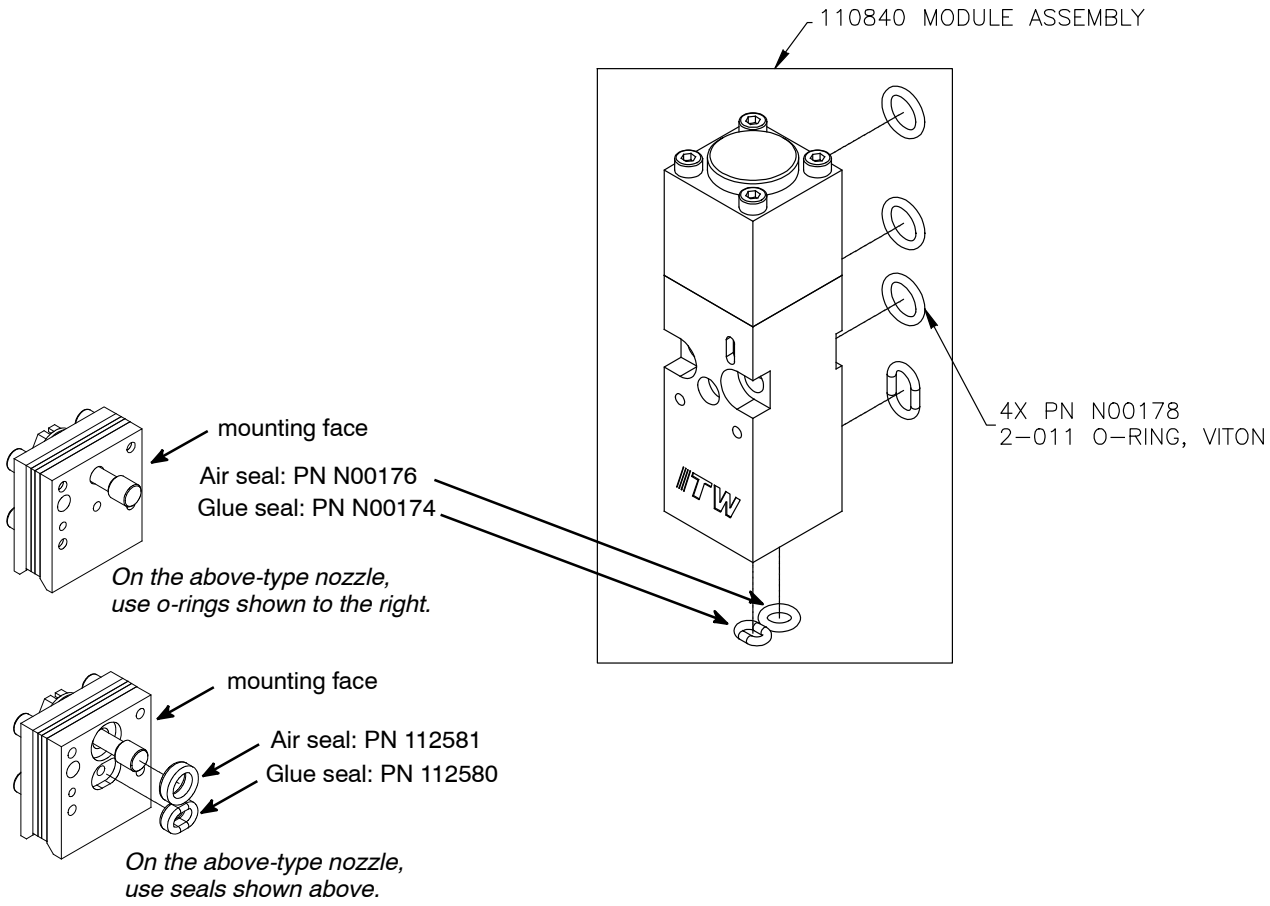
Bill Of Material for PN 106224 UFD Spray Module Assembly, Vertical, Extended

Item No.	Part Number	Description	Qty.
1	110791	Body Module	1
2	057C084	Stem Assembly	1
3	057E409	Compression Spring, Inner	1
4	057E410	Compression Spring, Outer	1
5	057F139	Air Cylinder	1
6	N00178	O-Ring, #011	3
7	078A184	6-32 x 2 SHC Screw	2
8	N00795	6-32 x 1 SHC Screw	2
9	078A373	6-32 x 1 1/4 SHC Screw	4
10	078A384	10-32 x 3/4 SHS Screw	1
11	078D078	10-32 Sealing Hex Nut	1
12	N00198	O-Ring, #113	1
13	**084B1361**	**Seal Cartridge Assembly**	1
14	057E429	Seal Cartridge	1
15	057I260	Seal Cartridge Gasket	1
16	069X197	Stem Seal	2
17	069X198	Seal Backup	2
18	078C085	Washer, .25 x .16 x .04	2
19	078F034	Retaining Ring	2
20	078G028	Roll Pin	1
21	N00176	O-Ring, #009	1
22	**113829**	**Vertical Adapter Assembly**	**1**
23	N05044	O-Ring, #109	1
24	N00174	O-ring, # 007	1
25	N00176	O-ring, #009	1
26	N00178	O-ring, #011	1
27	078G028	1/16 Dia. x 3/8 Long Roll Pin	2

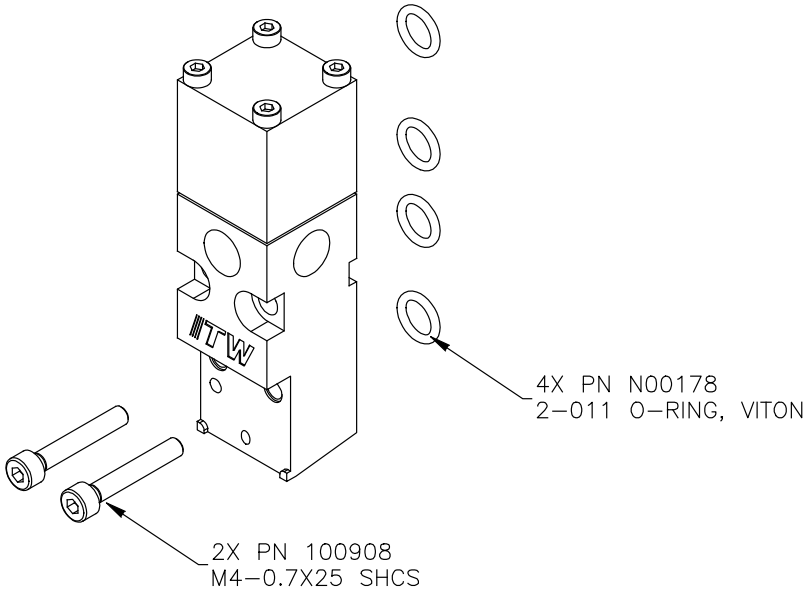


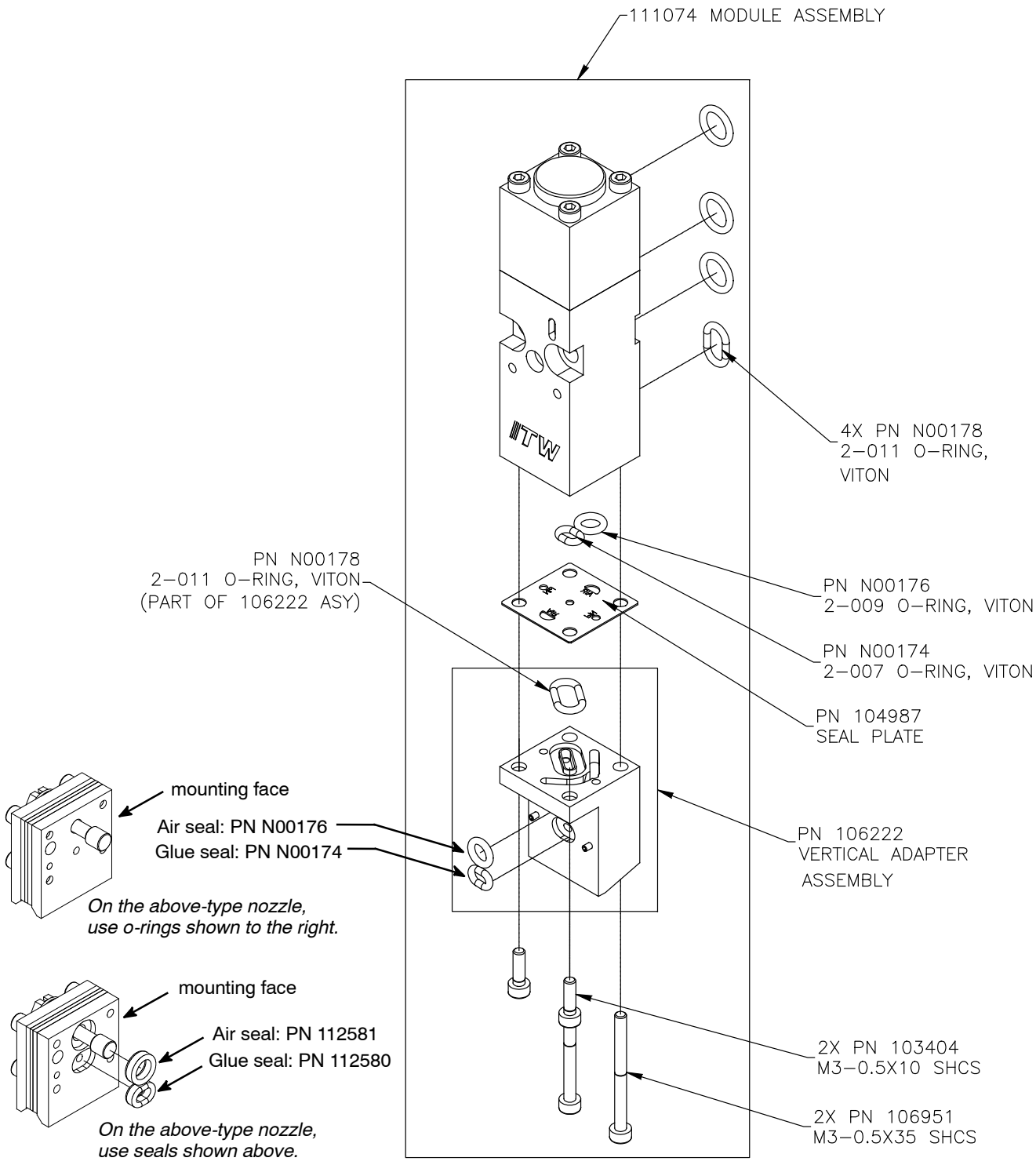
Component Illustration: PN 106224 UFD Spray Module Assembly, Vertical, Extended

PN 110840 Module Assembly, Horizontal, Snuffback (Module Option “K”)

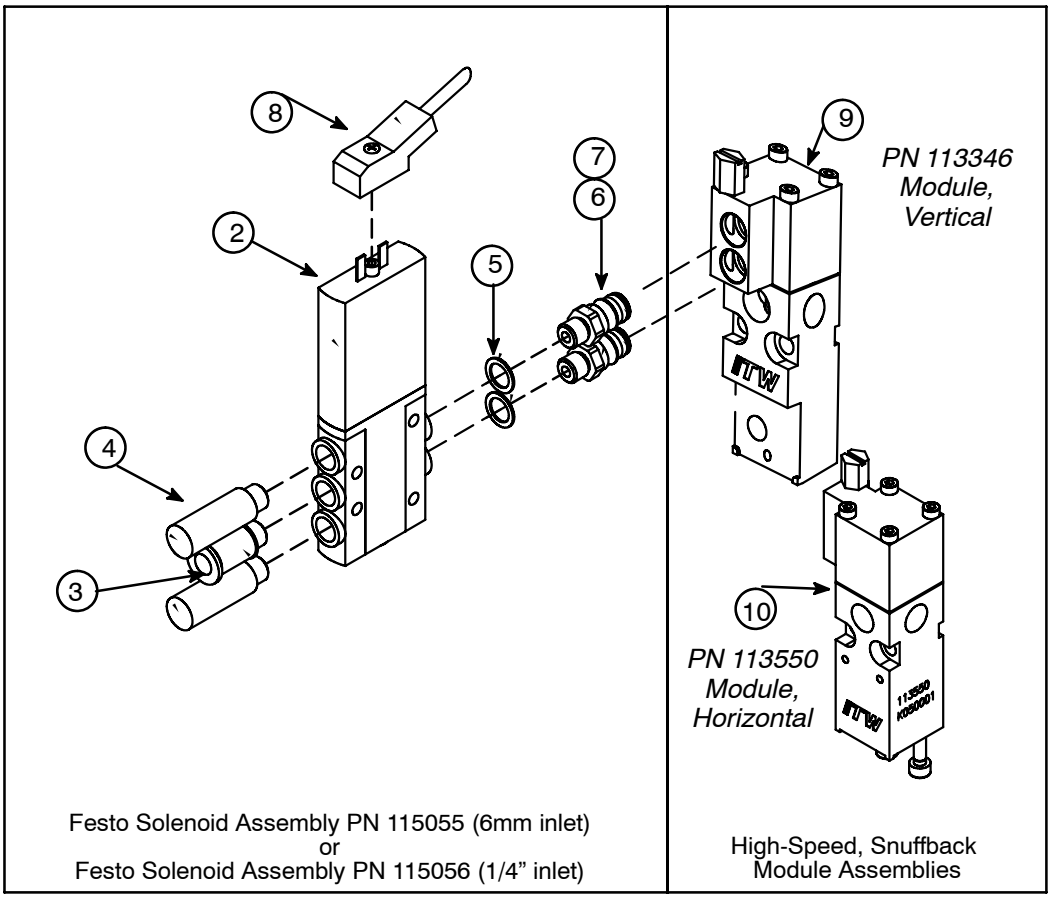


PN 113778 Module Assembly, High Speed, Vertical (Module Option “A”)





Note: PN 111074 module replaces PN 110559.



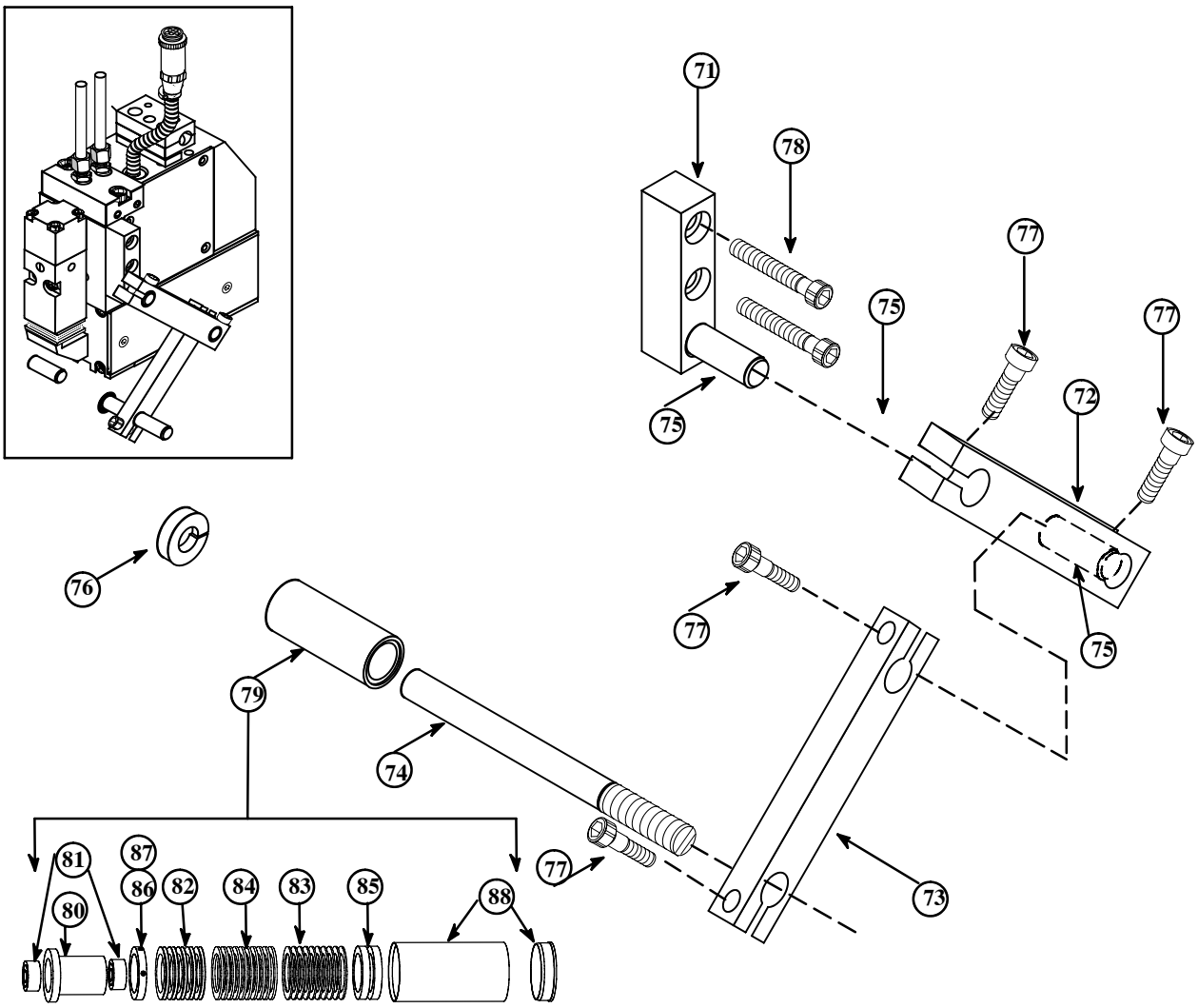
Festo Solenoid Assembly PN 115055 (6mm inlet)
or
Festo Solenoid Assembly PN 115056 (1/4" inlet)

High-Speed, Snuffback
Module Assemblies

PN 115055 & 115056 Festo Solenoid Assemblies

Item No.	Part Number	Description	Qty.
1	**115055**	**Solenoid Assembly, Festo MH, QC Module, 6mm Inlet**	
	115056	**Solenoid Assembly, Festo MH, QC Module, 1/4" Inlet**	
2	113350	Valve Solenoid, 4 Way, 24V, Festo MHEZ-MS1H-5/2-M7	1
3	113362	Push-in Fitting, M7 x 6mm Tube OD (used on PN 115055 only)	1
	113363	Push-in Fitting, M7 x 1/4 Tube OD (used on PN 115056 only)	1
4	113608	Silencer with PN 113607 Reducer	2
5	113356	Seal Ring, M7	2
6	113351	Fitting Solenoid, M7 x QC Mod Prot	2
7	N00175	O-ring, -008	2
8		Cable, Solenoid (not included in assembly, see below*)	1
	The above solenoid assemblies can be used with either of the two module assemblies shown (above right) for reference:		
9	113346	Module, HSSB, Vertical ("J" Option)	
10	113550	Module, HSSB, Horizontal ("M" Option)	

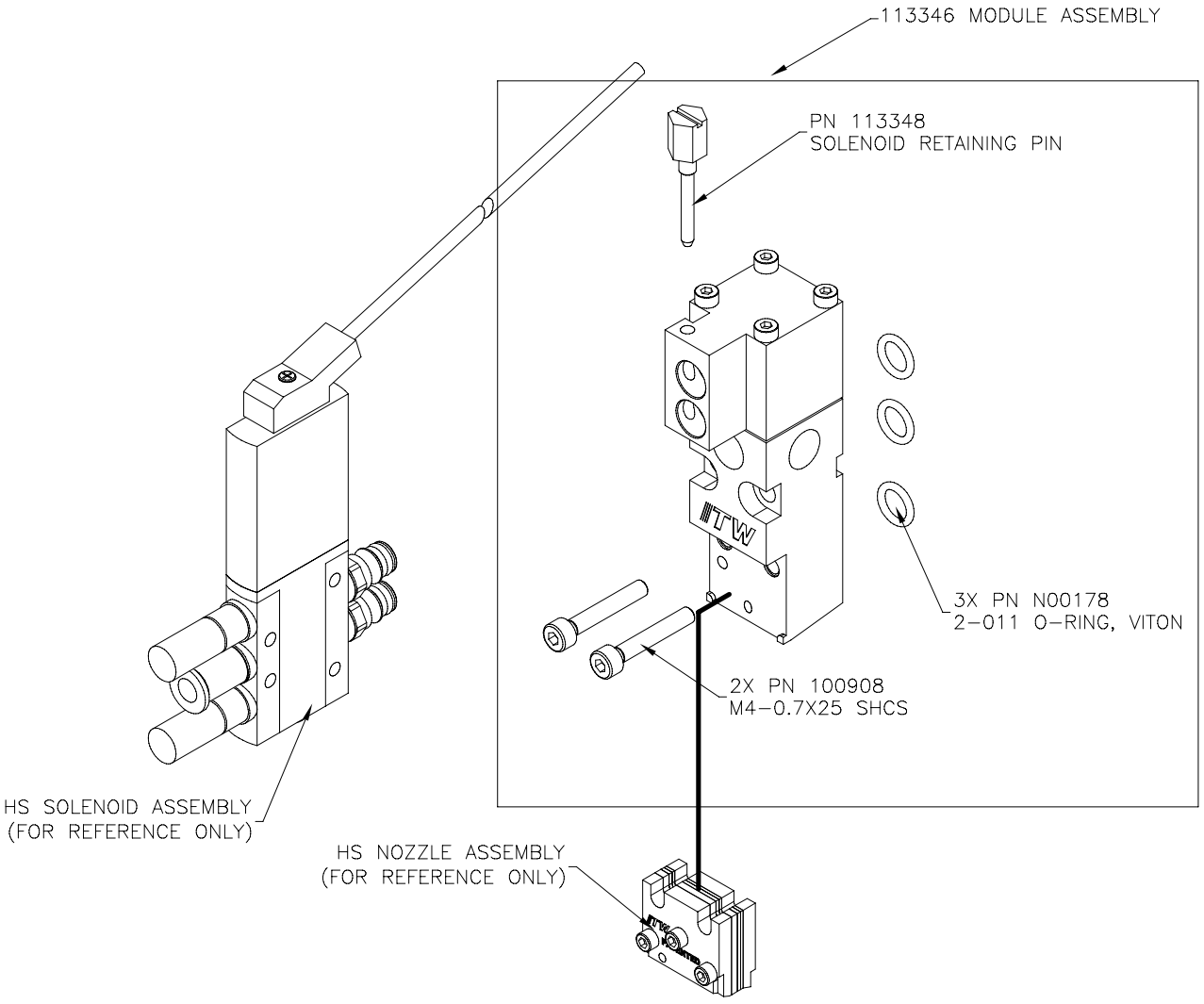
**Available Cables:*
113361 Cable, Solenoid, 24V, LED, 2.5m
114557 Cable, Solenoid, 24V, LED, 10m



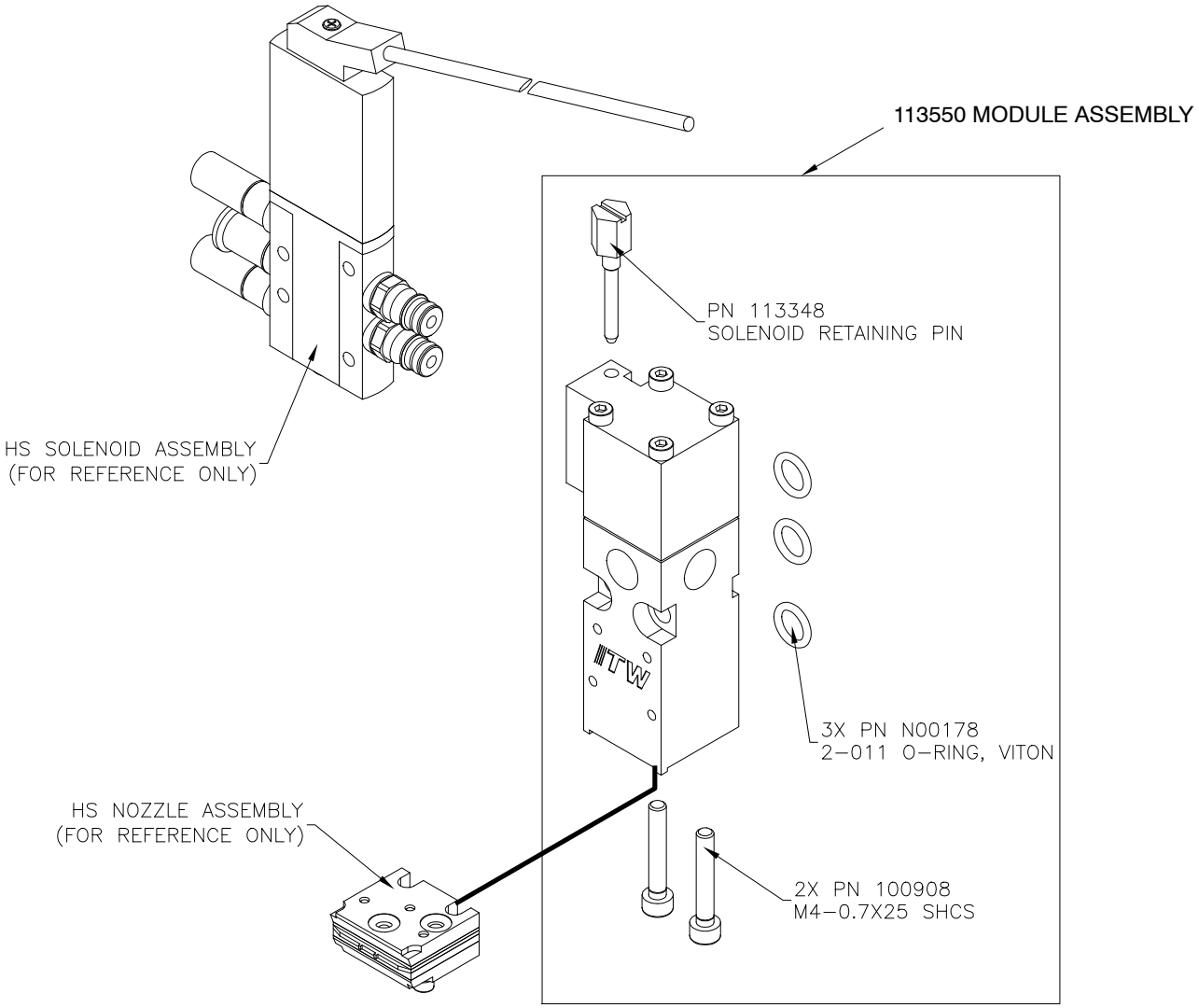
PN 107622 Elastic Guide Bracket Assembly (Option)

Item No.	Part Number	Description	Qty.
71	107615	Base Guide Arm	1
72	107616	Guide Arm	1
73	107617	Roller Arm	1
74	107618	Roller Axle	1
75	107619	Dowel Pin, M10 x 30mm	2
76	107621	Shaft Collar, 3/8" Dia.	1
77	104662	M6-1 x 16mm SHC Screw	2
78	803081	M6-1 x 20mm SHC Screw	1
79	**108112**	**Guide Roller Kit**	**1**
80	108023	Roller Hub	1
81	107620	Shield Bearing	2
82	108019	Guide, 3mm	5
83	108020	Spacer, 1mm	10
84	108021	Spacer, 1.5mm	10
85	108022	Spacer, 5mm	10
86	108024	Collar Lock	1
87	103470	M3-0.5 x 6mm SH Set Screw	2
88	108110	Container, 1.5 Dia. x 3.o LG	1

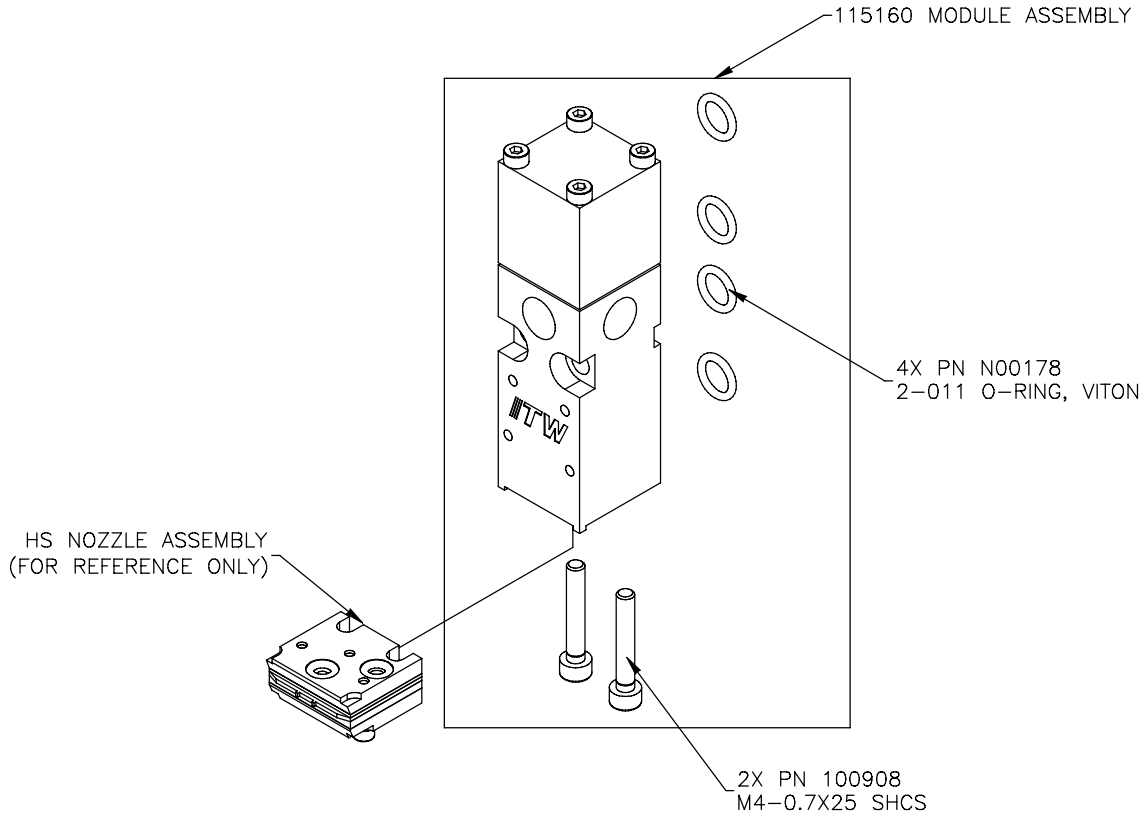
PN 113346 Module Assembly, High Speed, Vertical (Module Option "J")

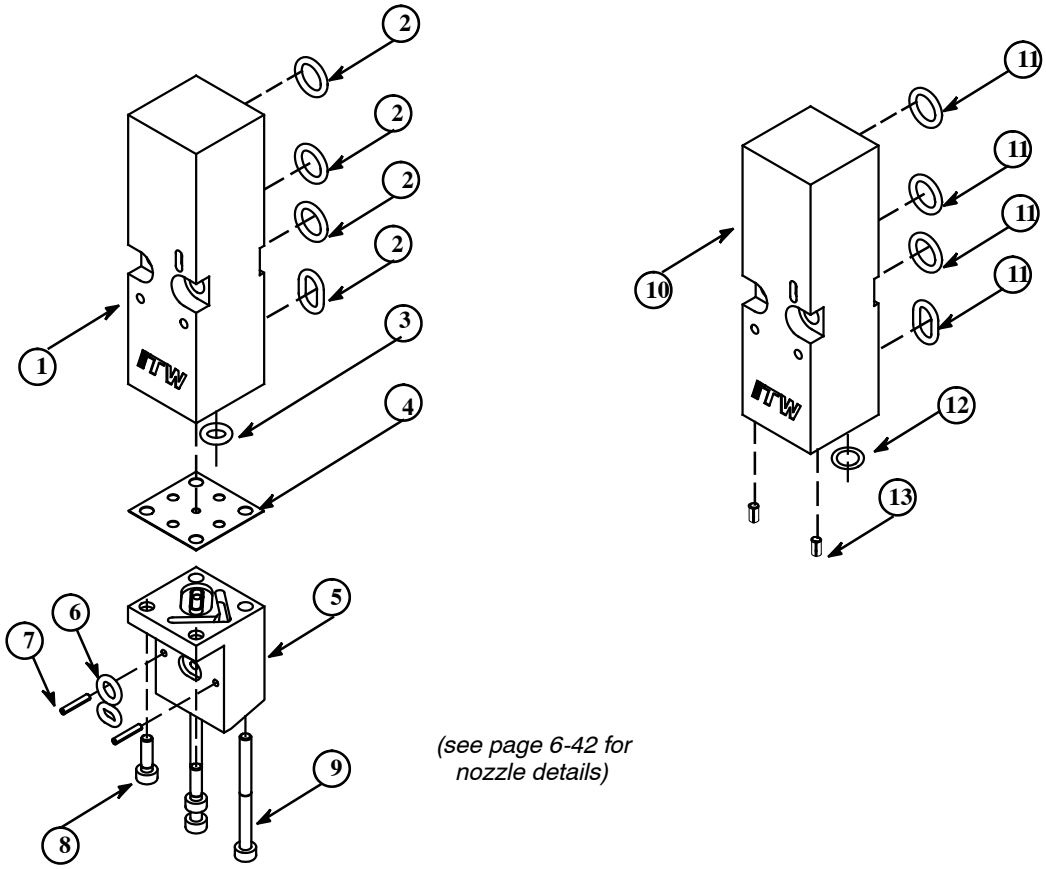


PN 113550 Module Assembly, High Speed, Horizontal (Module Option "M")



PN 115160 Module Assembly, High Speed, Horizontal (Module Option "P")





(see page 6-42 for nozzle details)

Module Blank, Vertical Air Only - PN 111053 (shown above left)

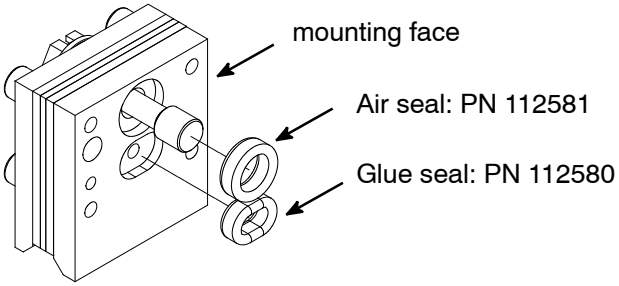
Item No.	Part Number	Description	Qty.
1	111051	Module Body, Air Only	1
2	N00178	O-ring, -011	4
3	N00176	O-ring, -009	2
4	104987	Vertical Adapter Seal	1
5	106221	Vertical Adapter	1
6	N00174	O-ring, -007	1
7	078G028	Spring Pin, 1/16 x 3/8	2
8	103404	SHC Screw M3 x 10mm	2
9	106951	SHC Screw M3 x 35mm	2

Module Blank, Horizontal Air Only - PN 111052 (shown above right)

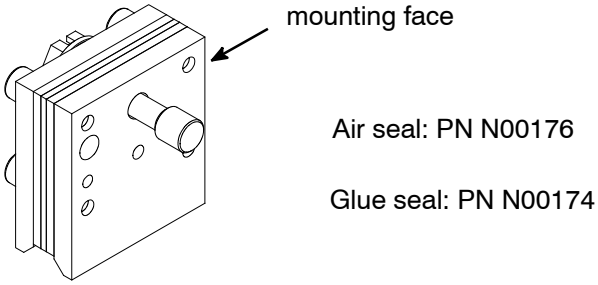
Item No.	Part Number	Description	Qty.
10	111051	Module Body, Air Only	1
11	N00178	O-ring, -011	4
12	N00176	O-ring, -009	1
13	078G028	Spring Pin, 1/16 x 3/8	2

UFD Nozzle Seals

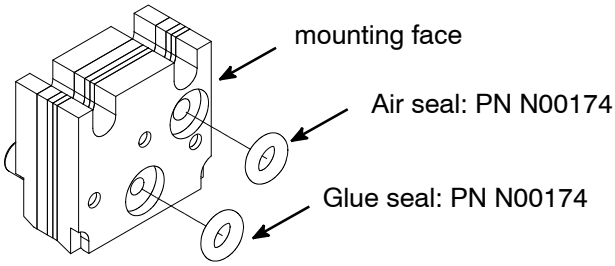
Standard Nozzle (with seal grooves on mounting face)



Standard Nozzle (with no seal grooves on mounting face)
The seals for this nozzle are supplied with and installed on the module.



High-Speed Nozzle (with seal grooves on mounting face)



Chapter 7
OPTIONS & ORDERING GUIDES

Applicator Heater Cartridges

Applicator	Part No.	Description	Location
UFD050	106444	10x40mm, 150w	service block
	106448	8x40mm, 200w	air preheater (std. only)
	106329	10x60mm, 200w	air preheater
UFD075	106548	10x65mm, 175w	service block
	106549	8x65mm, 300w	air preheater (std. only)
	106329	10x60mm, 200w	air preheater
UFD100	106325	10x90mm, 200w	service block
	106330	8x90mm, 400w	air preheater (std. only)
	106329	10x60mm, 200w	air preheater
UFD150	106715	10x140mm, 300w	service block
	106716	8x140mm, 600w	air preheater (std. only)
	106717	10x60mm, 100w	air preheater

Applicator RTD Sensors

Control Scheme	Part No.	Description	Qty.
DynaControl/Allen-Bradley (option D)	N07958	Pt100	2
MCV (option M)	104912	Dual Pt100	2
Upgrade, Ni RTD (option N)	N07864	N120	2
Upgrade, J-type TC (option L)	107051	J-type TC	2
Upgrade, Pt RTD (option P)	N07958	Pt100	2

Filters

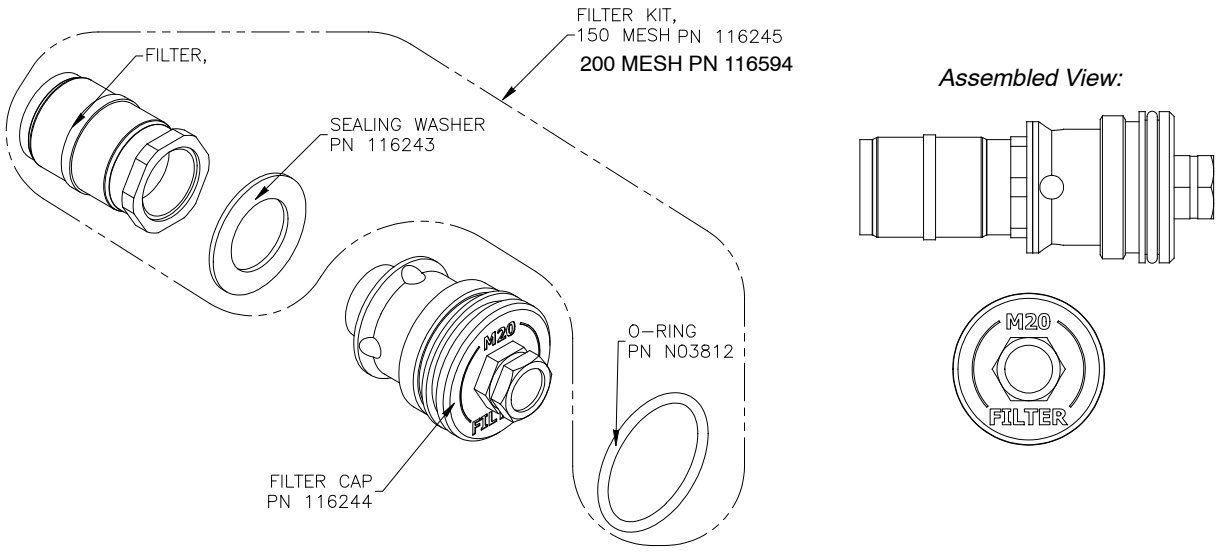
see head model number for factory installed filter (pg. 6-1)

Filter Code	Filter Part No.	Description
A	101247	Filter Basket, 100 mesh
B	106273	Filter Basket, 150 mesh
C	116245	Filter Kit, 150 mesh, M20 Spin-on
D	116595	Filter Kit, 200 mesh, M20 Spin-on

Filter Kits

To simplify ordering, Filter Kits are available.

Filter Kit PN	O-ring PN	Filter Cap PN	Filter PN
114291	N03812 O-ring #125	106303 Filter Cap	101247 100-mesh, Basket
114292	N03812 O-ring #125	106303 Filter Cap	106273 150-mesh, Basket
116246*	N03812 O-ring #125	116244 Filter Cap	116245 150 mesh, Spin-on
116595*	N03812 O-ring #125	116244 Filter Cap	116593 200 mesh, Spin-on



* PN 116246 M-20 Spin-On Filter Assembly (filter code C),
PN 116595 M-20 Spin-On Filter Assembly (filter code D)

Service Kits

UFD Module Rebuild Kit PN 105150 (codes H, V, HQ, VQ)

UFD Module Rebuild Kit PN 110889 (codes K, F)

UFD Hi-Temp Module Rebuild Kit PN 803012

The module rebuild kits contain all the parts necessary to rebuild one module.

High-Temp Splice Kit PN102645

This kit consists of a foot of shrink-wrap tubing and nine connectors (splices). These parts plus a sensor (order the sensor separately from the chart in this chapter) will enable you to replace the sensor in one applicator.

Optional UFD Nozzle Cleaning Oven (PN 107307 = 200-240v Oven/ PN 107306 = 120v Oven)

The use of the UFD Nozzle Cleaning Oven eliminates the need to disassemble the UFD nozzles for cleaning. Nozzles are baked in the oven for approximately six hours at 750-800 degrees F. Complete cleaning instructions are provided.

Optional Pressure Transducer Tap

Option Code “P” (see page 6-1) adds one pressure transducer adapter to the applicator. A special fitting is installed in the left accessory port of the applicator. This fitting allows an industry-standard pressure transducer with 1/2–20 threads to be connected to the applicator downstream of the filter. A post-filter transducer is useful for monitoring the pressure drop across the filter as an indication of a plugged filter. The transducer adapter can be relocated to any of the hose inlets as required for installation clearance and operator access.

Optional Drain Valve PN 107820

Option Code “A” (see page 6-1) adds a drain (purge) valve to the applicator. The drain valve is installed in the right accessory port of the applicator. The drain valve is useful for relieving pressure prior to maintenance or repair of the applicator. Also, the drain valve is useful for flushing the filter chamber after the filter has been replaced. It can be relocated to the left accessory port if necessary for installation clearance and operator access.

Optional Balanced Solenoid Manifold

Option Code “E” (see page 6-1) specifies a balanced solenoid manifold (equalized manifold). This manifold has multiple solenoids, but unlike a multiple program manifold, all of the open air passages of each solenoid are connected within the manifold. Likewise, all of the close air passages are connected. The purpose of this is to negate the effects of slight differences in modules and solenoids, resulting in a very consistent and even start-and-stop pattern. The applicator is, of course, limited to one program.

Optional Elastic Guide Bracket Assembly **PN 107622**

A strand guiding system is available for use with the UFD0501 and UFD0502 applicators. This system provides all of the components necessary for successful coating of elastic or Lycra strands such as those used in the production of disposable diapers and incontinence products. The system includes a bracket assembly that mounts to the side of the applicator and a modular roller kit which is configurable for most metric strand spacings. The arms of the guide are fully adjustable to work with both horizontal and vertical modules. The roller will support up to five strands, with a minimum strand spacing of 3mm.

Optional Low-Profile (Slim line) Models **(codes A, J, M, P)**

A low-profile applicator refers to an overall smaller head. They are smaller due to the use of slimmer air heaters, smaller solenoids and the smaller modules of high speed applications. Operation, mounting and connectors remain the same as in standard models.

Extension Cable Assemblies

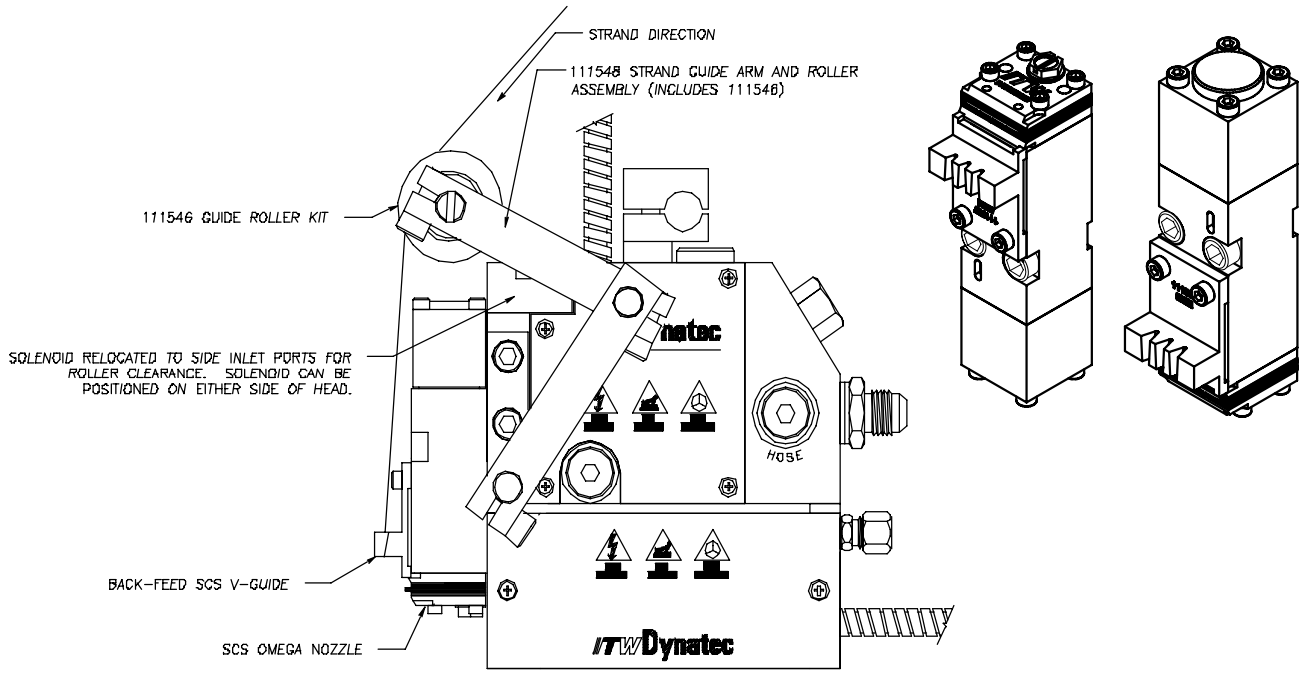
The following extension cable assemblies are available. These cables connect one applicator zone to the ASU. One cable assembly per applicator is usually required for the preheater; others may be used as necessary for the installation.

Control Scheme	Part No.	Length	Part No.	Length
DCL/ PLC (control option D)	103773 103774 103775	10’ 15’ 20’	103776 105123 105147	25’ 30’ 40’
MCV (control option M)	084F222 084F225 084F223	10’ 15’ 20’	084F682 084F383	25’ 30’
Upgrade (Ni RTD) (control option N)	102706 106349	10’ 25’	105834	40’
Upgrade (J-type TC) (control option L) Service Block only	107044 107045 107046	2m 4m 6m	107047 107309	8m 10m
Upgrade (J-type TC) (control option L) Air Heater only	110149 110150 110151	2m 4m 6m	110152 110153	8m 10m
Upgrade (Pt RTD) (control option P) Service Block only	110159 110160 110161	2m 4m 6m	110162 110163	8m 10m
Upgrade (Pt RTD) (control option P) Air Heater only	110154 110155 110156	2m 4m 6m	110157 110158	8m 10m

Optional Strand Coating System (SCS)

Dynatec's Stand Coating System is an application used for adhesive coating of elastics. A v-guide holds the elastic strand in position in front of the applicator's nozzle in order to precisely coat it with adhesive as it passes before the module's orifice. "Back-feed" refers to an elastic strand entering the guide from behind the module (see below) while "front-feed" refers to a strand entering from in front of the guide (see next page).

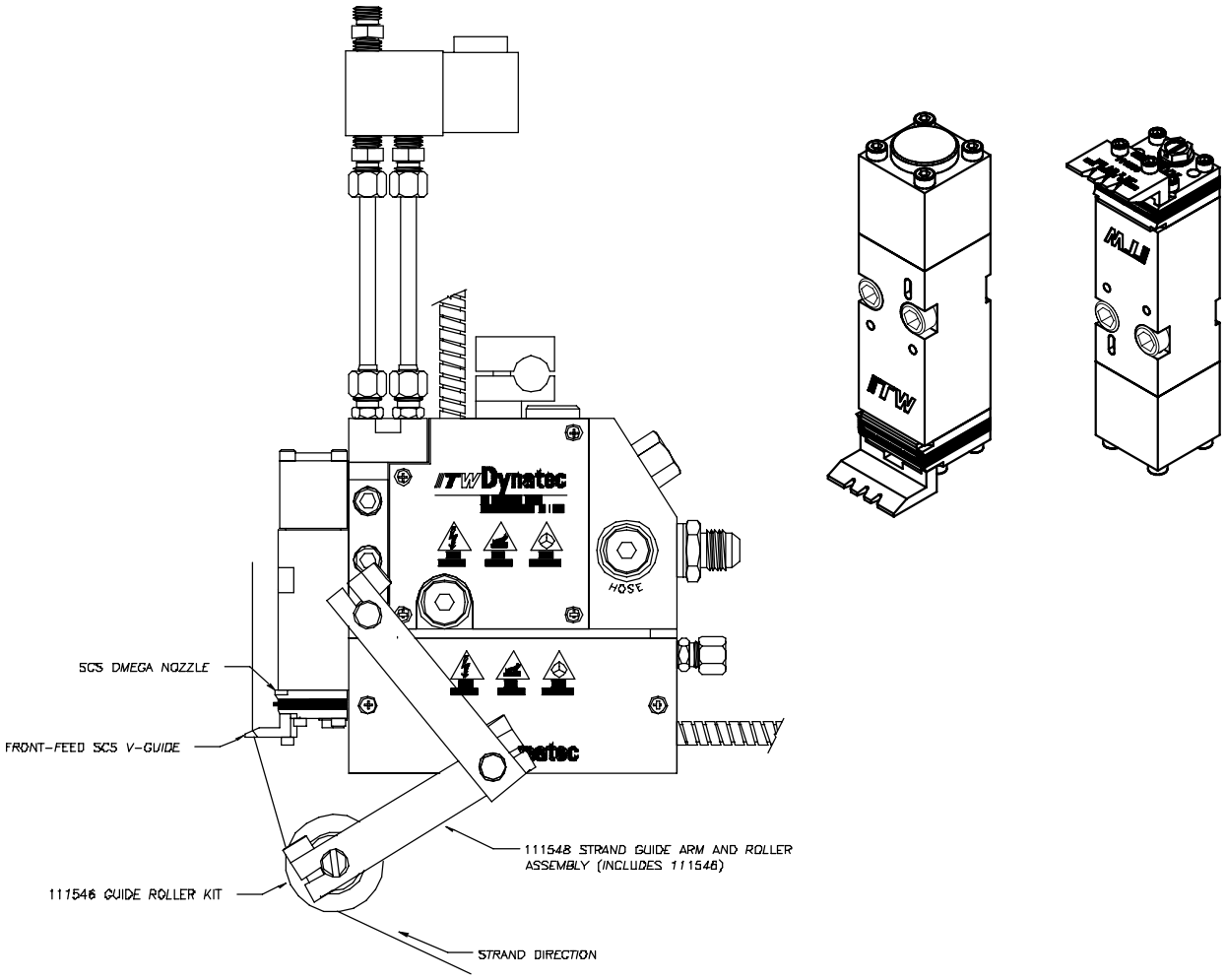
Back-Feed SCS V-Guide


STRAND DIRECTION
111548 STRAND GUIDE ARM AND ROLLER ASSEMBLY (INCLUDES 111546)
111546 GUIDE ROLLER KIT
SOLENOID RELOCATED TO SIDE INLET PORTS FOR ROLLER CLEARANCE. SOLENOID CAN BE POSITIONED ON EITHER SIDE OF HEAD.
BACK-FEED SCS V-GUIDE
SCS OMEGA NOZZLE
HOSE
ITW Dynatec

Back-Feed Guide PN	SCS V-Guide	Omega 12 SCS Nozzle	Omega 16 SCS Nozzle
111585	1 Strand	111574	111565
111586	2 Strand / 5mm	111575	111566
111587	3 Strand / 5mm	111576	111567
111588	4 Strand / 5mm	111577	111568
111589	3 Strand / 4mm	111578	111569
111590	2 Strand / 8mm		111570
111591	2 Strand / 9mm		111571
111592	2 Strand / 10mm	111581	111572
111593	5 Strand / 5mm	111582	111573
111594	4 Strand / 4mm	111579	11583
111595	2 Strand / 3mm	111580	
111641	3 Strand / 6mm	111639	111640
111653	3 Strand / 3mm	111651	111652

111546: SCS Guide Roller Kit (guides up to five strands)
111548: Strand Guide Arm & Roller Assembly (includes PN 111546 Kit)

Front-Feed SCS V-Guide



Front-Feed Guide PN	SCS V-Guide	Omega 12 SCS Nozzle	Omega 16 SCS Nozzle
111597	1 Strand	111574	111565
111598	2 Strand / 5mm	111575	111566
111599	3 Strand / 5mm	111576	111567
111600	4 Strand / 5mm	111577	111568
111601	3 Strand / 4mm	111578	111569
111602	2 Strand / 8mm		111570
111603	2 Strand / 9mm		111571
111604	2 Strand / 10mm	111581	111572
111605	5 Strand / 5mm	111582	111573
111606	4 Strand / 4mm	111579	111583
111607	2 Strand / 3mm	111580	
111642	3 Strand / 6mm	111639	111640
111654	3 Strand / 3mm	111651	111652

111546: SCS Guide Roller Kit (guides up to five strands)
111548: Strand Guide Arm & Roller Assembly (includes PN 111546 Kit)

Recommended Service Parts List

Part Number	Description	Qty. per Applicator
105150	UFD Module Rebuild Kit	as required
803012	UFD Hi-Temp Module Rebuild Kit	as required
See Ordering Guide	Heaters	as required
See Ordering Guide	RTD Sensor, Service Block	1
See Ordering Guide	RTD Sensor, Preheater	1
N03812	O-ring #125	2
N00196	O-ring #111	1
N00181	O-ring #014	1
N00178	O-ring #011	as required
N00176	O-ring #009	as required
N00174	O-ring #007	as required
102645	High-Temp Splice Kit	1
See Ordering Guide	Filter Basket	2
001V061	Thermal Paste	1
See Your Job Order	Solenoid Valve	1
See Your Job Order	Nozzle	2

Recommended quantities of spare parts vary depending on each individual applicator. Refer to your applicator's bills of materials (BOMs) to determine quantities of heaters, sensors, o-rings, filter baskets and kits.

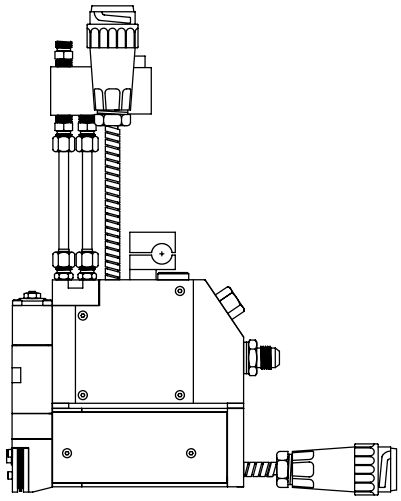
As a general rule, we recommend that you keep on hand:
Heaters: half as many of each heater as listed on the BOM,
Sensors: half as many of each sensor as listed on the BOM,
Kits: half as many as the number of modules on the BOM,
O-rings: the same quantity as listed on the BOM,
Filter Baskets: twice as many as listed on the BOM.

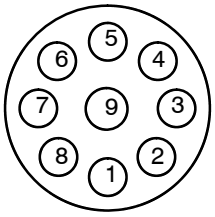
Chapter 8
ENGINEERING DRAWINGS & SCHEMATICS

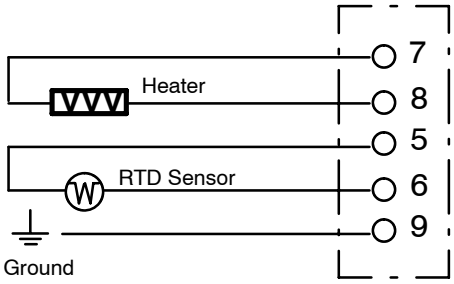
Pin Connectors & Electrical Schematics

Note: Pin connectors are viewed from the exposed end. Pins not shown on schematics are not used.

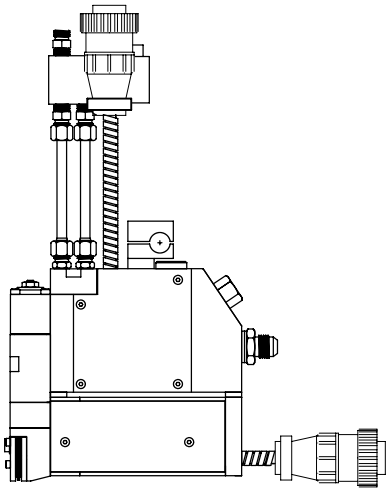
DynaControl/Dynamini or PLC Control Scheme PN 103117 (control option D)

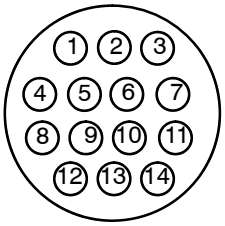


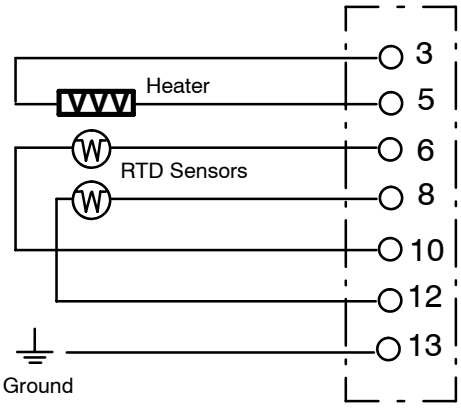




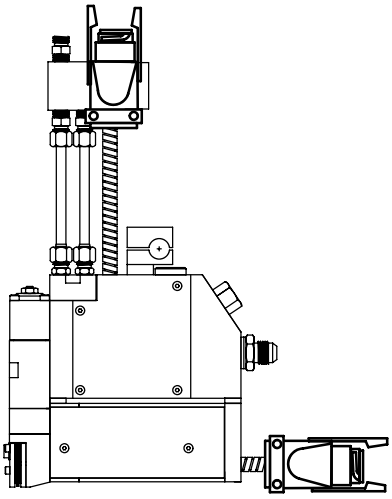
Microprocessor Temperature Control or CompuVision (MCV) Control Scheme PN 045X144 (control option M)

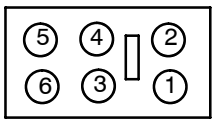




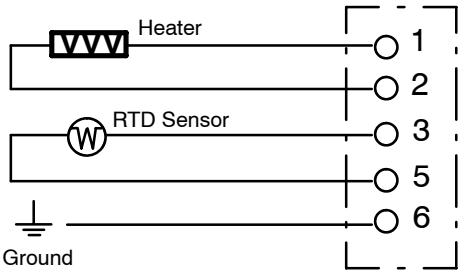


Upgrade (Nickel RTD) Control Scheme PN 104551 (control option N)



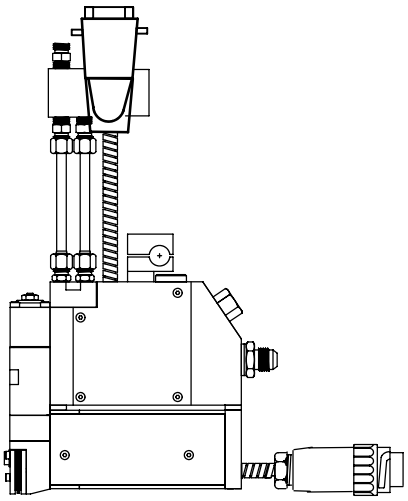


Note: pin out numbers are not labeled on the Upgrade connector.

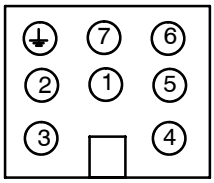


Upgrade (J-type Thermocouple) Control Scheme (control option L)

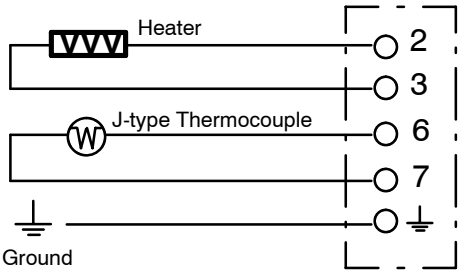
To Head



To Head Connector

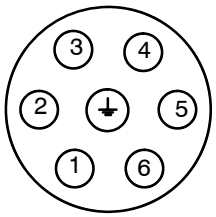


To Head Connector

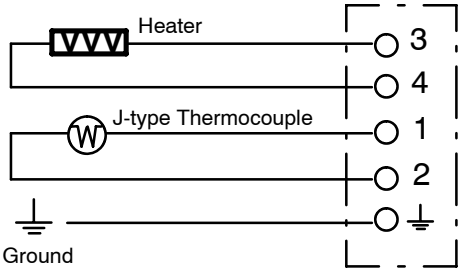


To Air Heater

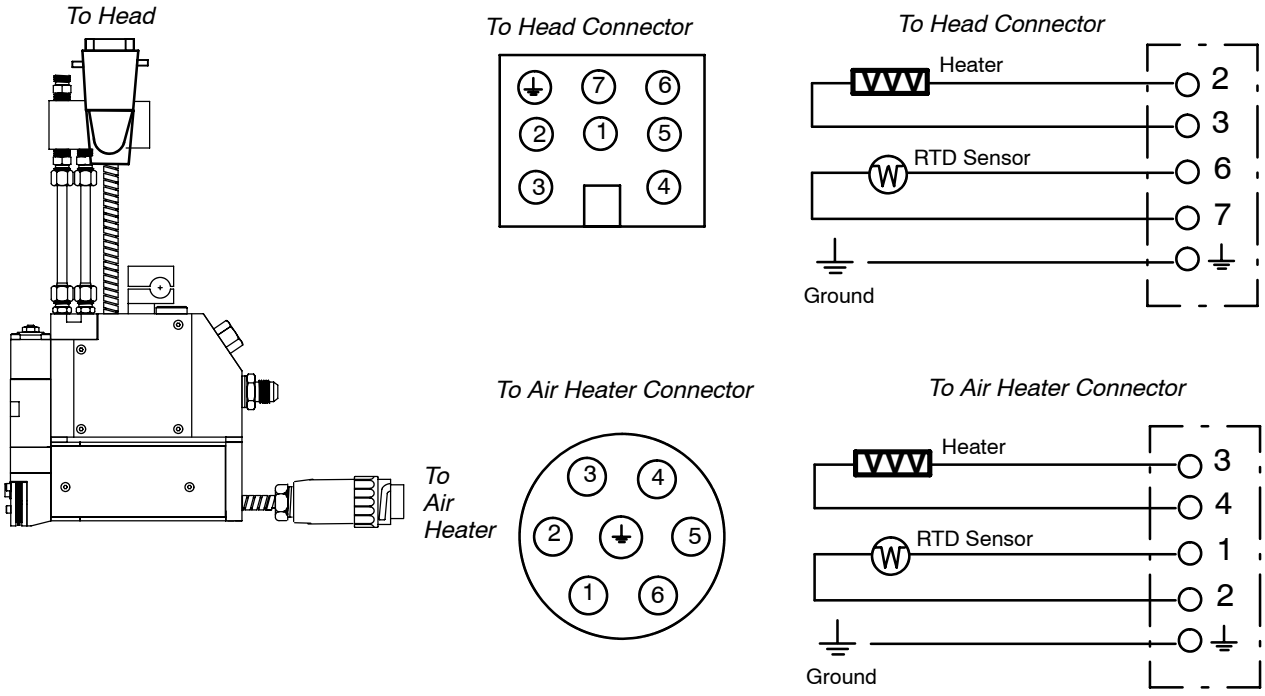
To Air Heater Connector



To Air Heater Connector



Upgrade (Platinum RTD) Control Scheme (control option P)



Appendix A
SOLENOID VALVE CONFIGURATIONS, SCHEMATICS & SETUP

This Appendix covers the pneumatic setup of the solenoid valves used to actuate the adhesive modules. A coalescing filter/ regulator kit (PN 100055) is available to provide regulated, oil-free air to the solenoid valves. The kit also contains the necessary fittings and tubing to configure the kit for each particular solenoid valve.

Some typical solenoid valve setups are shown on the following pages. While the most commonly used solenoid valves are shown, other valves not listed here may be used if required for the particular application. In general, however, the setups shown here can be applied to any solenoid valve. If there are questions about a valve that was supplied with the applicator, and it is not shown here, consult ITW Dynatec.

Appendix A is divided into sections for easy reference:

Section 1 – PN 100054 24 VDC solenoid valve

Section 2 – PN 100383 24 VDC
PN 100421 120 VAC
PN 811506 240 VAC solenoid valves

Section 3 – PN 106937 24 VDC solenoid valve

Section 4 – PN 112496 24 VDC solenoid valve

Section 5 – PN 113352 24 VDC hi-speed solenoid valve assy., 6mm inlet fitting, 2.5m
PN 113451 24 VDC hi-speed solenoid valve assy., 1/4 inlet fitting, 2.5m
PN 114558 24 VDC hi-speed solenoid valve assy., 6mm inlet fitting, 10m
PN 114559 24 VDC hi-speed solenoid valve assy., 1/4 inlet fitting, 10m

Section 6 – Component Illustration: 100055 Air Control Kit

Filter/ Regulator Installation Notes

1. Compressed air for applicator head operation should be clean, dry and oil free.

2. In general, operation of more than one applicator head from a single air control kit is not recommended, because applicator response time may be increased and synchronization may be more difficult.

3. Install the filter/ regulator so that the bowl drains are easily accessible for servicing and the regulator knob is accessible for adjustments.

4. Use a minimum of 1/4” OD tubing to make connections.

5. If air tubing is routed close to the head due to space constraints, high temperature TFE tubing should be used to avoid tubing damage.

Appendix A
Section 1
PN 100054 (24 VDC)

Description

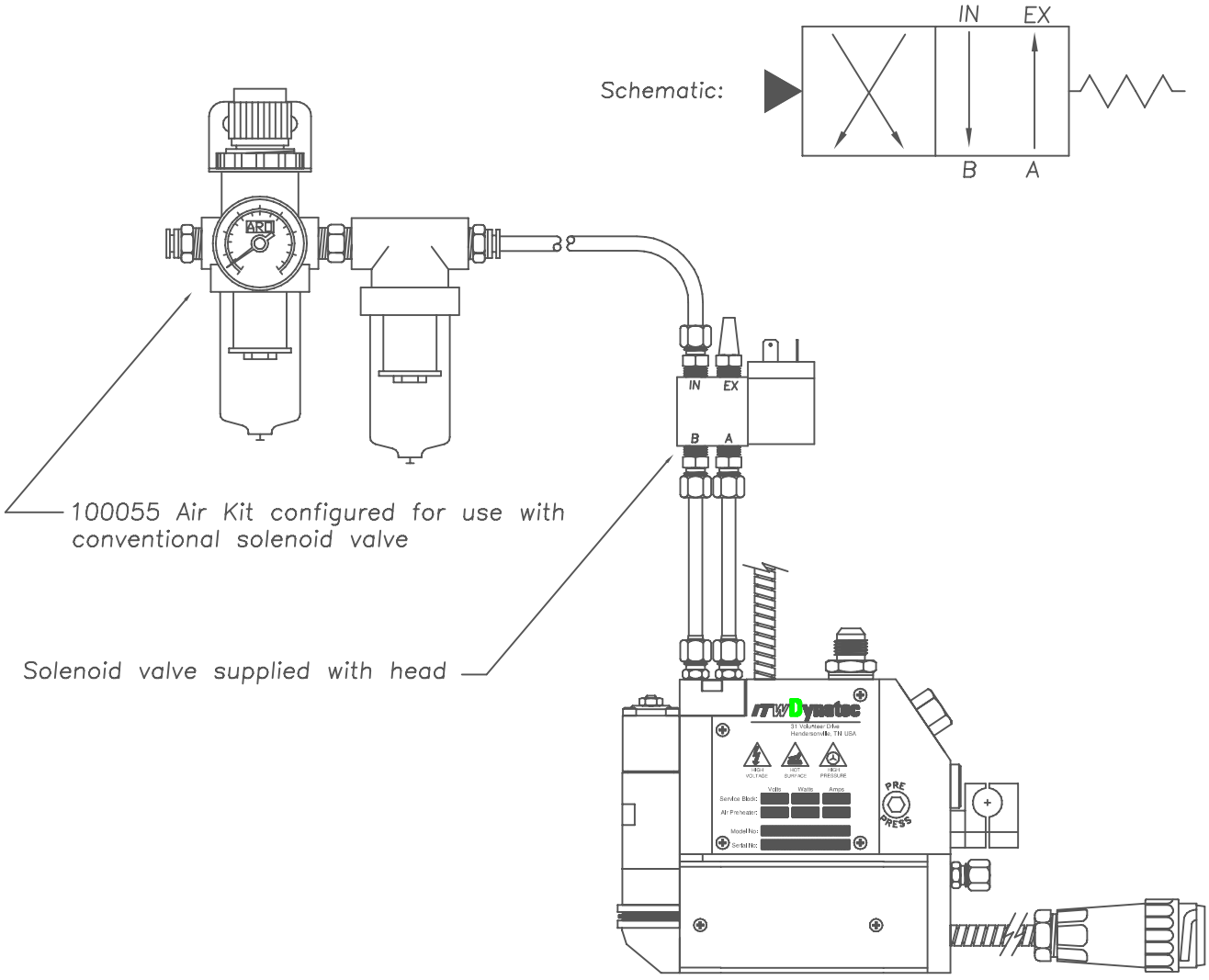
Direct acting poppet valve, 4-way, 1/8 NPT ports, with non-locking recessed manual operator.

Connections

IN - Inlet
EX - Exhaust
A - Open side of module
B - Close side of module

Typical Setup

Apply full air pressure (80-90 psi) to IN port of solenoid valve. Use air control kit PN 100055, configured as shown below.



Appendix A
Section 2
PN 100383 (24 VDC), 100421 (120 VAC) & 811506 (240 VAC)

Description

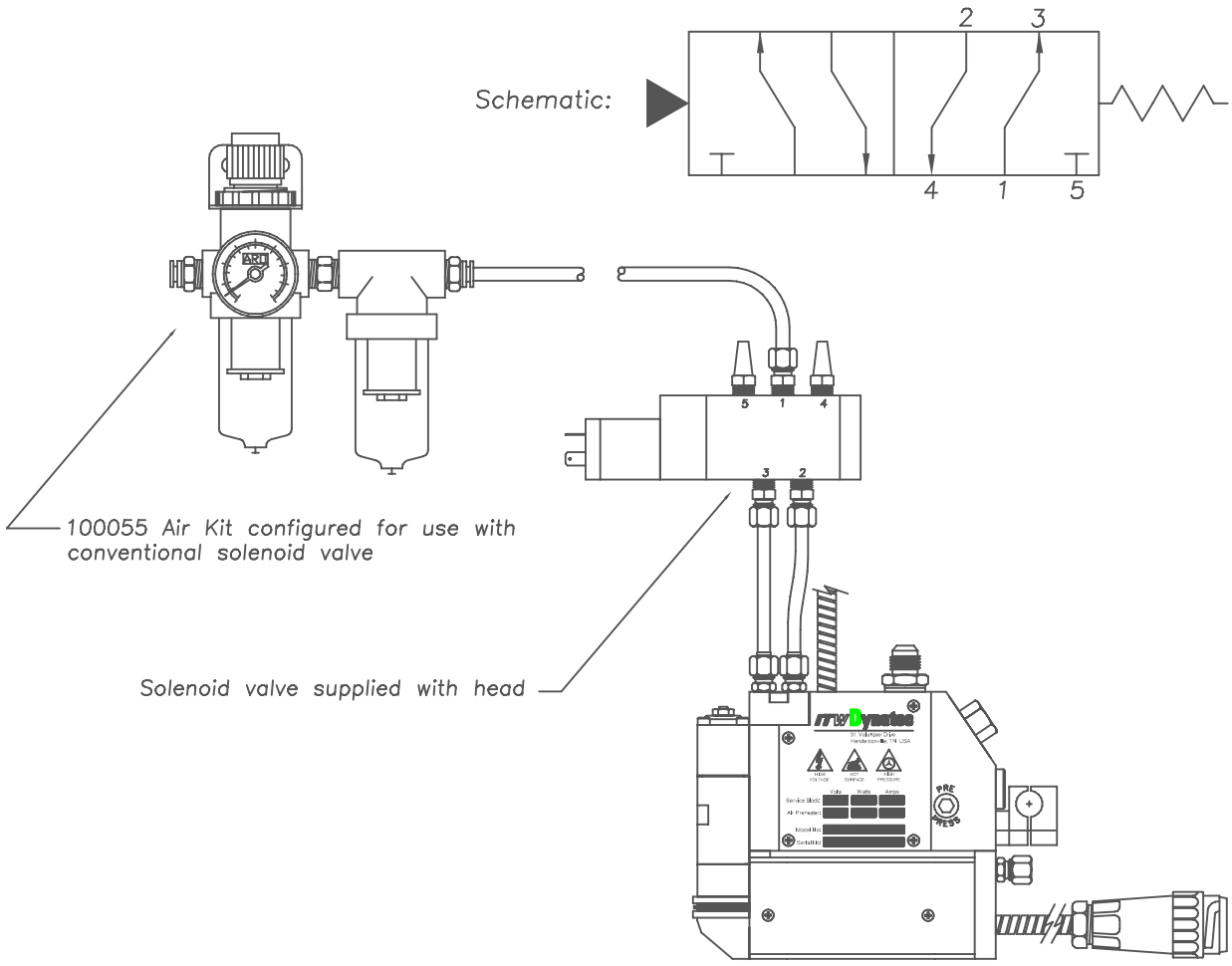
Piloted spool valve (internally piloted), 4-way, 1/4 NPT ports, with non-locking recessed manual operator.

Connections

Port 1 – Inlet
Port 2 – Open side of module
Port 3 – Close side of module
Port 4 – Exhaust
Port 5 – Exhaust

Typical Setup

Apply full air pressure (80-90 psi) to Port 1 of solenoid valve. Use air control kit PN 100055, configured as shown below.



Appendix A
Section 3
PN 106937 (24 VDC)

Description

Piloted spool valve (internally piloted from Port 5), dual pressure spool, 1/8 NPT ports, with non-locking recessed manual operator.

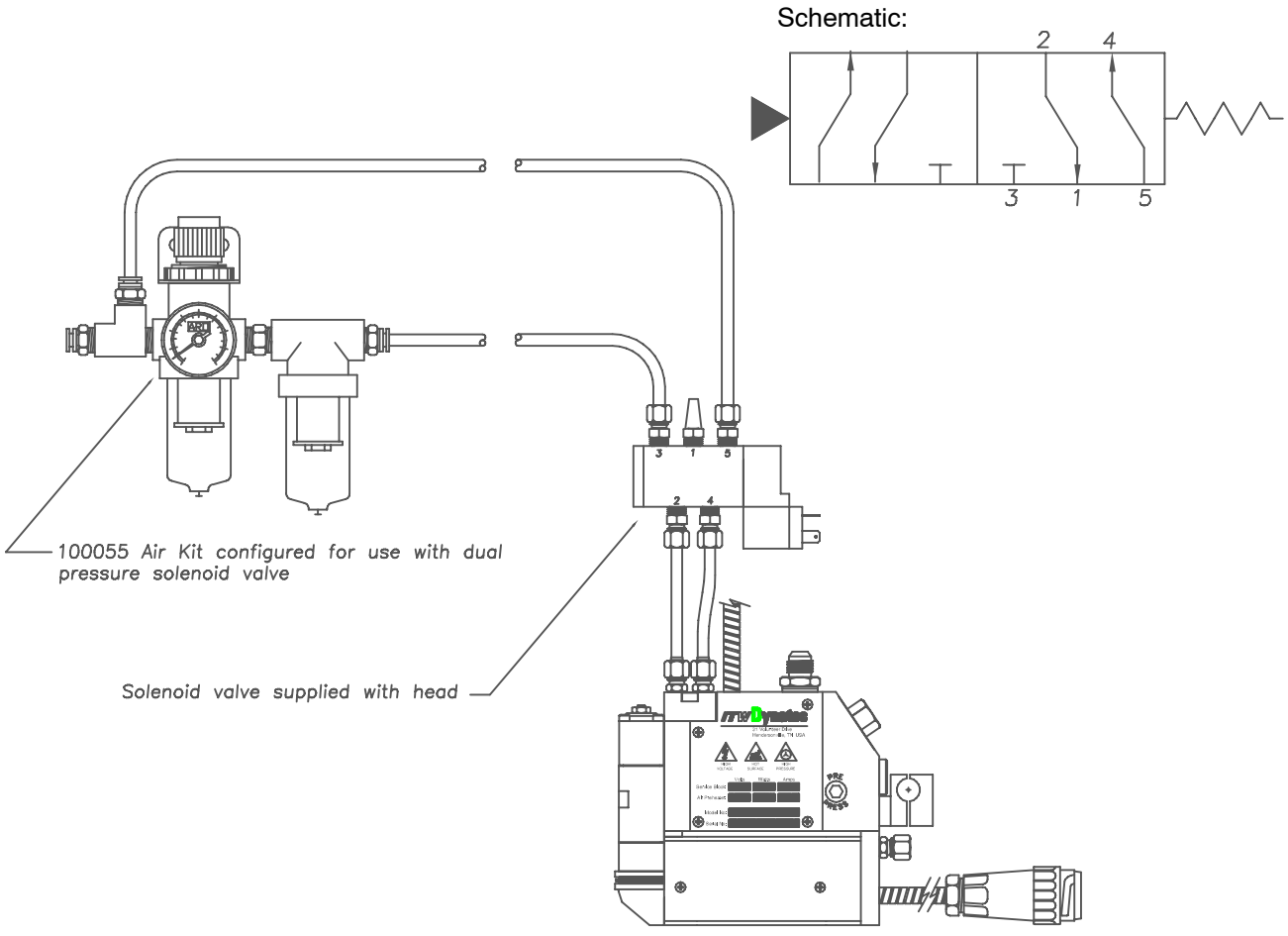
Connections

Port 1 – Exhaust
Port 2 – Open side of module
Port 3 – Inlet (open air)
Port 4 – Close side of module
Port 5 – Inlet (close air)

Typical Setup

Apply full air pressure (80-90 psi) to Port 5. Apply reduced air pressure to Port 3, using the air control kit PN 100055, configured as shown below.

The opening characteristic of the snuffback valve may be tuned by adjusting the opening air pressure. A starting point of 40 psi is recommended. The air pressure can then be adjusted down to soften the start, or adjusted up to give a more crisp start. The final adjustment will depend on the desired speed of operation (i.e. line speed), adhesive pressure and customer preferences.



Appendix A
Section 4
PN 112496 (24 VDC)

Description

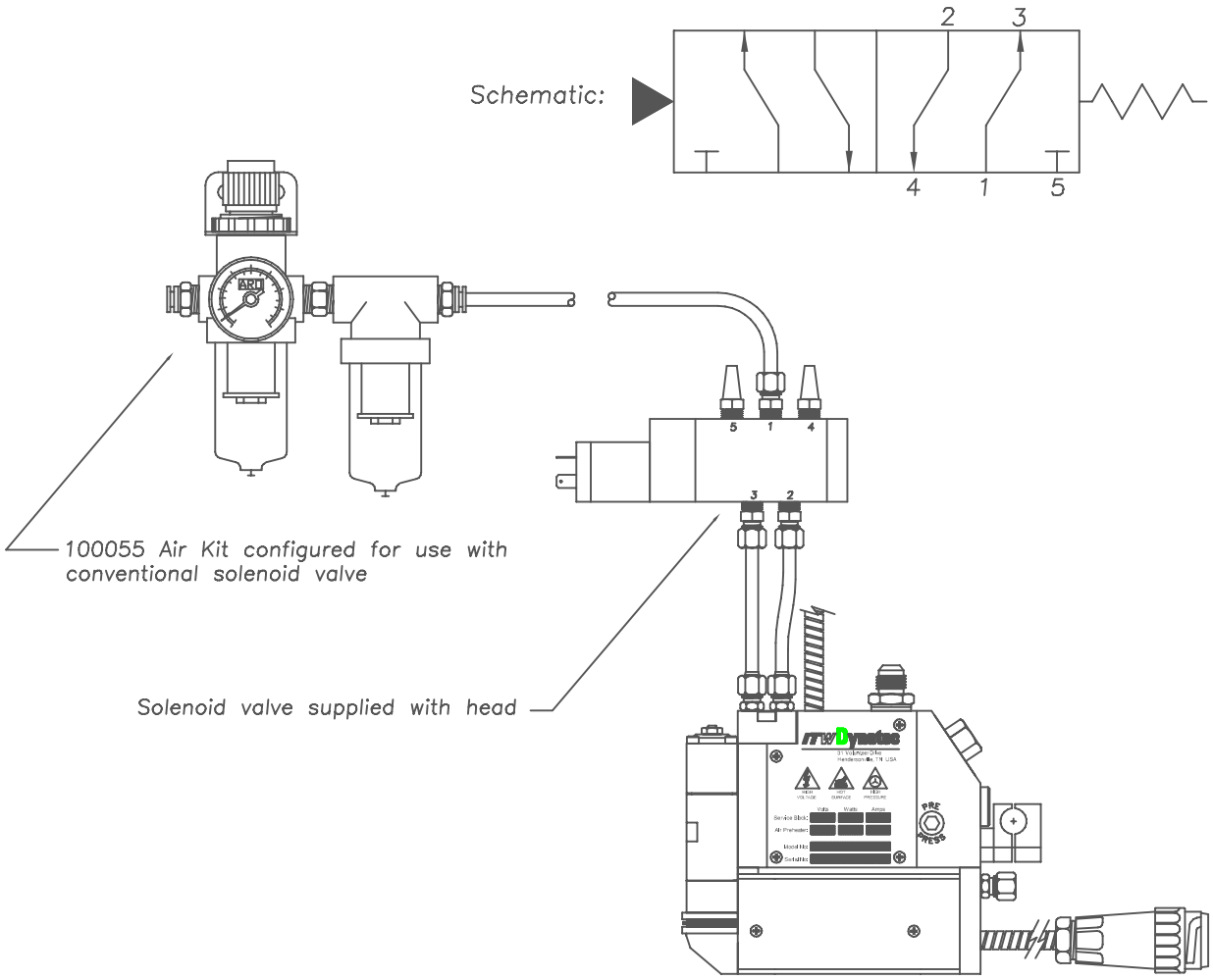
Piloted spool valve (internally piloted), 4-way, 1/4 NPT ports, with non-locking recessed manual operator.

Connections

Port 1 - Inlet
Port 2 - Close side of module
Port 3 - Open side of module
Port 4 - Exhaust
Port 5 - Exhaust

Typical Setup

Apply full air pressure (70-90 psi) to Port 1 of solenoid valve. Use air control kit PN 100055, configured as shown below.



Appendix A
Section 5
PN 113350 Hi-Speed Solenoid, 24 VDC

Description

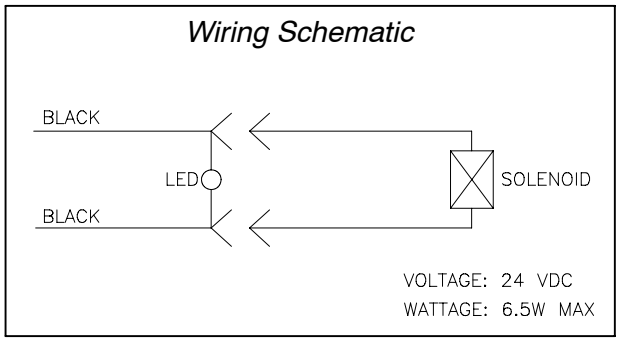
Direct-acting spool valve, 4-way, 24 VDC operation with M7 ports. Solenoid is configured to connect directly to the module. It is not setup for use as an in-line solenoid.

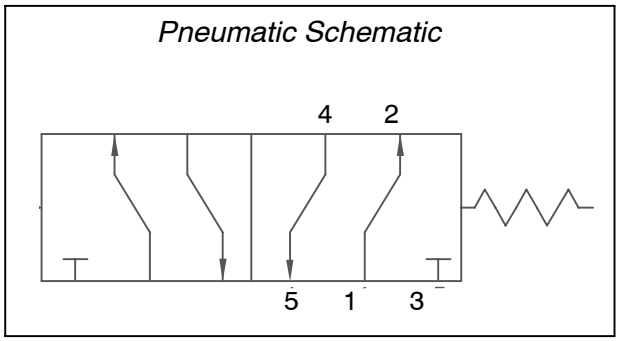
Connections

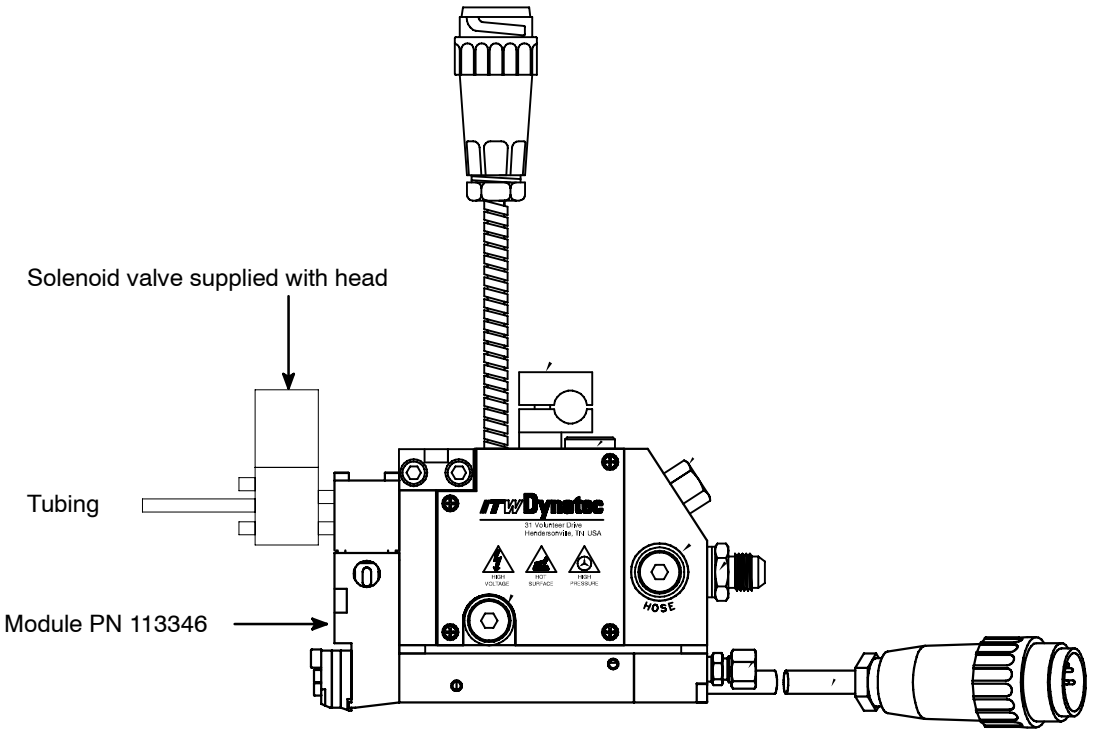
Port 1 – Inlet
Port 2 – Close side of module
Port 4 – Open side of module
Port 3 – Exhaust
Port 5 – Exhaust

Typical Setup

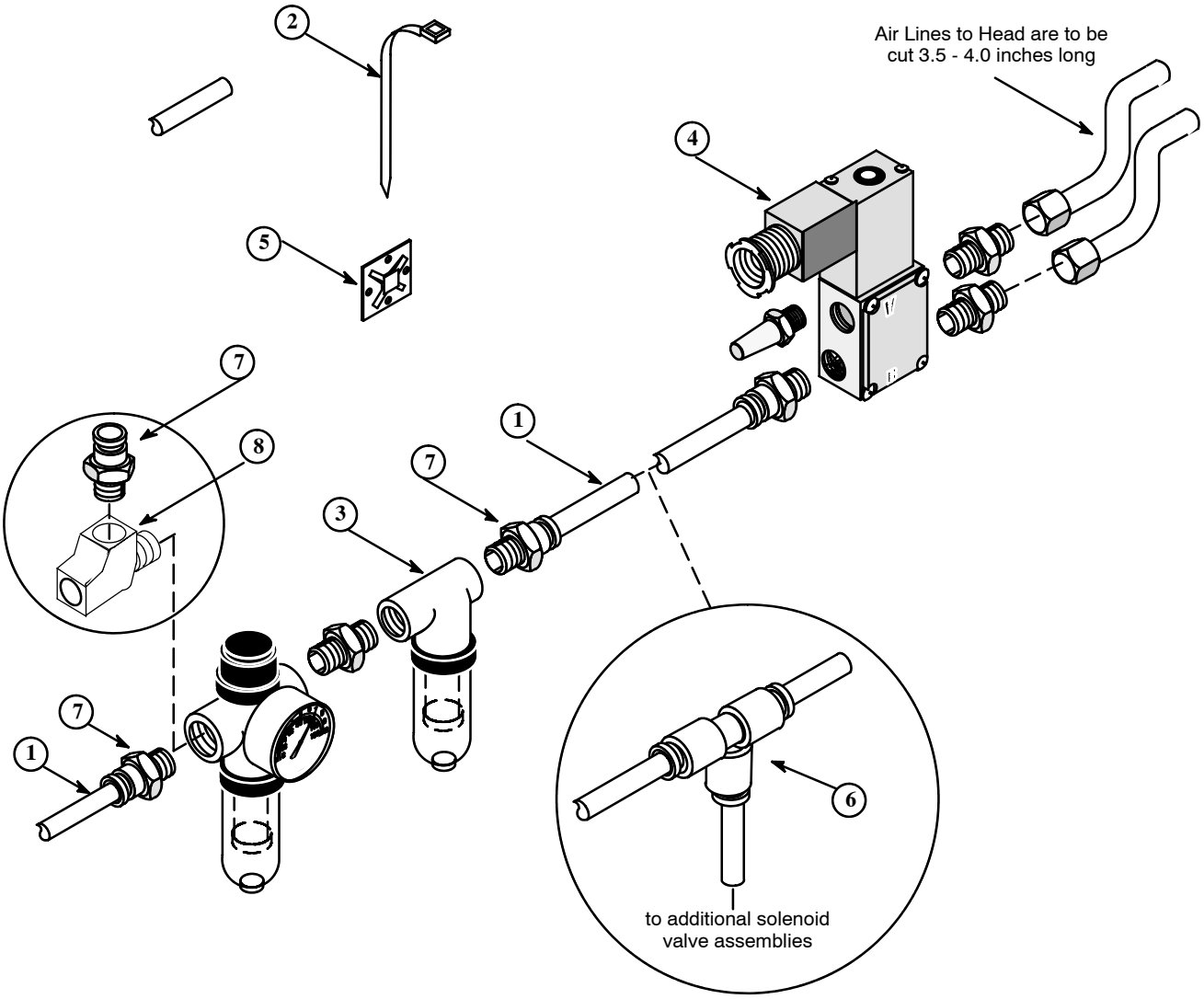
Apply full air pressure (80-90 psi) to Port 1 of solenoid valve.







Appendix A
Section 6
COMPONENT ILLUSTRATION: PN 100055 AIR CONTROL KIT



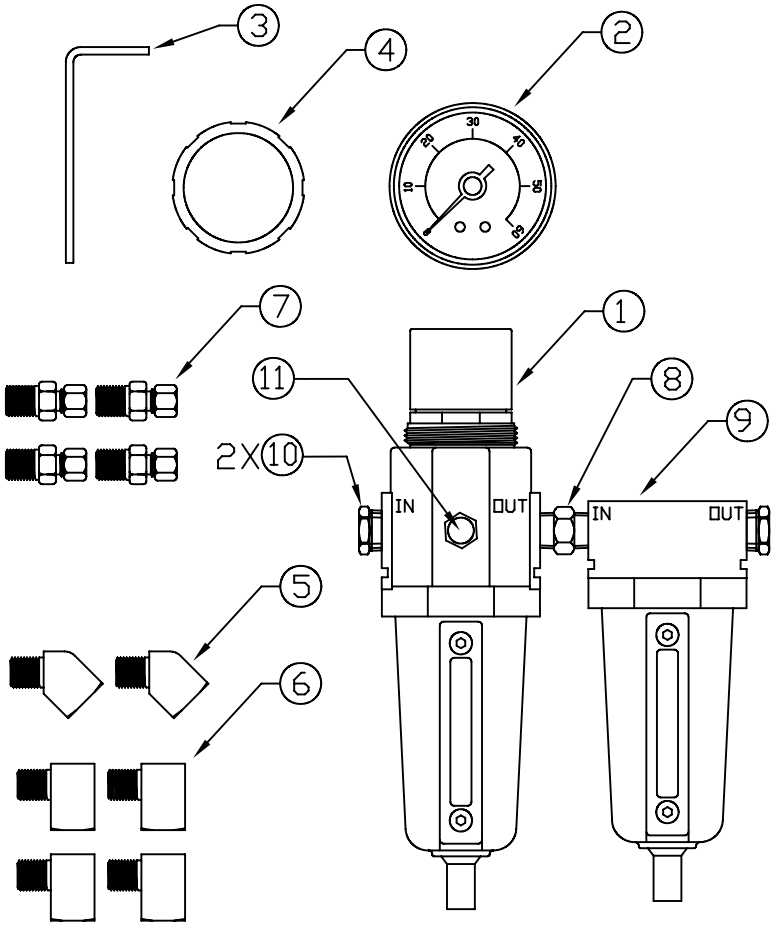
Item No.	Part Number	Description	Qty.
1	N06438	Nylon Tubing, .250 Dia.	10 ’
2	N00318	Cable Tie, .09 x 3.62 Lg	10
3	100380	Filter Assembly	1
4		Solenoid Valve Assembly	1
5	N04264	Cable Tie Anchor	3
6	N06504	Push-in Union Tee Fitting	1
7	N06430	Male Connect Fitting	3
8	N04531	1/4 Treet T, Brass	1

Appendix B
PN 107404 PROCESS (PREHEATER) AIR CONTROL FILTER/ REGULATOR

The PN 107404 Filter/ Regulator is available for precise control of the process spray air. It includes a coalescing filter/ regulator, a liquid-filled gauge, mounting bracket and necessary fittings.

Installation Notes

1. Locate the filter so that the bowl drains are easily accessible for servicing and the regulator knob is accessible for adjustments.
2. To ensure accurate process air control, operation of more than one applicator from a single filter/ regulator is not recommended.



Item No.	Part Number	Qty.		Description
11	108000	1	EA	FTG, RED, 1/4F to 1/8M NPT
10	066X028	2	EA	FTG,BUSHING,3/8 NPTx1/4 NPT,BRS
9	107403	1	EA	COALESCING FILTER
8	112319	1	EA	FTG,HEX NIP,3/8 NPT, BRS
7	N00092	4	EA	FITTING, 1/4 TUBE X 1/4 NPT
6	072X040	4	EA	1/4 NPT X 90° STREET ELBOW
5	072X002	2	EA	1/4 NPT X 45° STREET ELBOW
4	100995	1	EA	NUT, PANEL MOUNT
3	100994	1	EA	BRACKET, MOUNTING
2	100992	1	EA	GAUGE, 0-60 PSI
1	100991	1	EA	FILTER/REGULATOR

Appendix C
RESISTANCE TABLES

RTD Resistance - Temperature Tables

Pt 100 Ohms
Control Option D, M or P

Temperature °F	Temperature °C	Resistance in Ohms
32	0	100.00
50	10	103.90
68	20	107.79
86	30	111.67
104	40	115.54
122	50	119.40
140	60	123.24
158	70	127.07
176	80	130.89
194	90	134.70
212	100	138.50
230	110	142.29
248	120	146.06
268	130	149.82
284	140	153.58
302	150	157.32
320	160	161.04
338	170	164.76
356	180	168.46
374	190	172.16
392	200	175.84
410	210	179.51
428	220	183.17

Ni 120 Ohms
Control Option N

Temperature °F	Temperature °C	Resistance in Ohms
32	0	120.00
50	10	127.17
68	20	134.52
86	30	142.06
104	40	149.80
122	50	157.75
140	60	165.90
158	70	174.27
176	80	182.85
194	90	191.64
212	100	200.64
230	110	209.85
248	120	219.29
268	130	228.95
284	140	238.84
302	150	248.95
320	160	259.30
338	170	269.89
356	180	280.77
374	190	291.95
392	200	303.46
410	210	315.31
428	220	327.54

Appendix D
OPTIONAL UFD NOZZLE-CLEANING OVEN MANUAL

PN 107307: 200-240v Oven/ PN 107306: 120V Oven

The use of the UFD Nozzle Cleaning Oven eliminates the need to disassemble the UFD nozzles for cleaning. Nozzles are baked in the oven for approximately four to eight hours at 750-800 degrees F (400-425C), depending on adhesive.

Oven users should read and understand the oven manufacturer's Owner's & Operator's Manual, supplied with the oven. This ITW Dynatec manual is intended to be a quick reference only for use with ITW Dynatec's UFD nozzles.

Oven Safety Precautions

General Precautions

1. Never operate the oven in close proximity to combustible materials or place combustible materials on top of the oven.

2. Do not use solvents or liquid cleaners on the control panel as they will enter the panel and damage it.

3. Place nozzle-cleaning oven in a well ventilated area.

Setup Safety

1. Connect to a properly grounded outlet only in order to provide continued protection against the risk of electrical shock.

2. a. The model PN 107306 (120v) oven must be electrically grounded to a three-wire electrical outlet or receptacle. The electrical service provided must be a dedicated line of the proper size according to local electrical codes (1500 watts).

b. The model PN 107307 (200-240v) oven must be electrically grounded to a four-wire electrical outlet or receptacle. The electrical service provided must be a dedicated line of the proper size according to local electrical codes (1300 watts).

3. The oven is not equipped with over-current protection on the AC primary. In the event that an over-current condition occurs, your facility's branch circuit over-current protection (fuse or circuit breaker) will be the primary means of protection.

Operator Safety

1. Always wear safety glasses and protective gloves and clothing when operating, loading and unloading the oven.

2. Always verify that the power switch light is OFF before attempting to load or reach into the oven chamber with any tools or instruments.

3. Do not attempt to operate the oven's controls with tongs or other tools which will damage the switches.

cont.

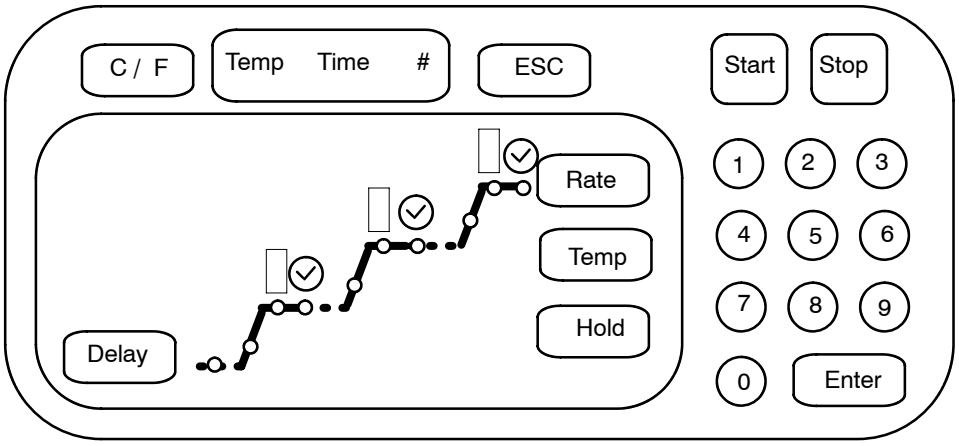
Oven Safety Precautions, cont.

4. Do not place firing trays or other hot objects directly in front of the oven; they will melt the graphic display.

Service Safety

1. Disconnect the line cord before attempting to service the oven.

2. Do not attempt to service the oven until you read and understand the manufacturer's Owner's & Operator"s Manual. Maintenance issues are beyond the scope of this ITW Dynatec manual.



Oven Control Panel & Display

UFD Nozzle Cleaning Procedure

1. Remove the UFD nozzles from their adhesive manifold(s). Wipe excess adhesive from nozzles. DO NOT disassemble the nozzles prior to the cleaning process.

2. Place the UFD nozzles on a metal or ceramic tray capable of withstanding 800 degrees Fahrenheit (425 degrees C).

3. If not already connected, connect the oven to an appropriate electrical source (120 or 240vac).

4. Place tray with nozzles within the oven and close the door completely.

WARNING

Do not load or unload the oven while the power supply is ON.

5. Turn ON the green Power Switch (seen above on right side of control panel). After a short delay for internal testing, the oven will display the approximate room temperature, program time (hours:

minutes) and program number. All red LEDs on the display will be OFF (if any LEDs are ON, then the oven was in the process of running a program when it was last shut down).

6. a. *Manual operation of oven:*
Select Program "0" (zero) by pressing the 0 (zero) numeric key. The 0 Program is a single-temperature-hold program. The oven will heat to the specified temperature and hold that temperature until the oven is turned off.

The display will read, for example, > TO 100°F → _____ . Use the numeric keys to input the desired temperature (750-800F), then press Enter. The new temperature is stored in memory after three seconds. The display will now read XX°F*****0. (***** indicates that the program has not started.) Note: "XX" represents the current ambient temperature inside the oven.

b. *Automatic operation of oven:* consult the manufacturer's manual for instructions.

7. Press the Start key to cause the oven to heat. The oven will heat at full power until it reaches the programmed temperature. The display will read > XX°F *hold* 0. The T1 LED will be ON.

8. After heat cycle, allow oven to cool to room temperature. Monitor display.

9. Remove the nozzles and tray from the oven. With clean, dry air, blow back through the nozzle openings at 40 to 60 pounds per square inch.

10. Wipe the outside surfaces of each nozzle with a clean, lint-free rag. Avoid wiping the nozzle tips.

CAUTION: Never use a wire brush or hard object when cleaning the nozzle tips or damage will result. Damage to nozzle tips will reduce the nozzle's ability to achieve an acceptable spray pattern.

11. Check torque on the four assembly screws (recommended torque is 12-15 in/lb.).

12. Purge nozzles with a liquid media, preferably the adhesive being used in their application. Alternatively, mineral oil, silicone oil, water or another liquid which has proven to be non-corrosive and is compatible with the material being processed by the nozzles may be used.

13. Examine the ejection pattern of the purging liquid from the nozzles for inconsistencies. Any irregularities may indicate damage to the nozzle tips or plugging within the tips.

Note: a sketch of the ejection pattern placed in the nozzle testing area will make identification of correct ejection patterns easier.

14. Place the cleaned nozzles in a clean, padded container, separated from other nozzles and hard surfaces that can damage nozzle tips.

15. Clean any residue from the inside of the oven and close its door to prevent environmental contamination.